

Students' Perceptions of GenAI Chatbot-assisted Feedback in Business Education: A Cross-Country Pedagogical Experience

Nataliya Romanyatova¹ , Héctor Ramón Rodríguez-Maya² , Ana Estima³ , Ailish O'Brien⁴ 

¹Academic Planning Office, IADT, Ireland, ²Department of International Business, Tecnológico de Monterrey, Mexico, ³GOVCOPP, ISCA, University of Aveiro, Portugal, ⁴Faculty of Business, SETU, Ireland.

How to cite: Romanyatova, N.; Rodríguez-Maya, H.R.; Estima, A.; O'Brien, A. (2026). Students' Perceptions of GenAI Chatbot-assisted Feedback in Business Education: A Cross-Country Pedagogical Experience. In: 12th International Conference on Higher Education Advances (HEAd'26). Valencia, 15-18 June 2026. <https://doi.org/10.4995/HEAd26.2026.21680>

Abstract

The integration of Generative Artificial Intelligence (GenAI) into assessment practices has raised important pedagogical questions in business education regarding the quality and reliability of such integration. This study examines students' perceptions of AI-assisted assessment feedback in undergraduate business courses in Portugal, Mexico, and Ireland. Using mixed approaches, the research examines how students perceive the usefulness of AI-assisted feedback as a complement to lecturer feedback for revising and enhancing their draft submissions. The findings highlight the benefits and concerns expressed by students, as well as students' self-reported improvements from draft to final submissions. Moreover, students suggest changes in the implementation of AI-assisted feedback and reflect on preferred feedback formats. The study contributes to the ongoing discussion on the pedagogical role of chatbots compared to lecturers and the use of AI and Universal Design for Learning (UDL) in assessment by offering cross-country insights into students' experiences and expectations in business undergraduate education.

Keywords: Chatbot-assisted feedback in business education; Inclusive Curricula; Student Perceptions; Higher Education; Educational Innovation; Cross-national study.

1. Introduction & Literature Review

The integration of GenAI and chatbots into online teaching, learning, and assessment practices in Higher Education (HE) has raised many questions about transparent, critical and ethical adoption, and non-delegated human accountability (O'Sullivan et al., 2025); GenAI's role in designing inclusive learning environments (Jaime-Vargas, 2025); and approaches for

supporting, rather than replacing, a lecturer in a meaningful, purposeful, and non-competitive way, when GenAI is described as a “teacher-AI team” or “competence augmentation tool” (OECD, 2026, p. 143) and when a lecturer remains “at the helm of major instructional decisions” (Office of Educational Technology, 2023, p. 16).

One concern that students or lecturers might raise about GenAI chatbots is their non-human nature and lack of genuine emotions (Al-Zahrani, 2025), which can sometimes outweigh the value of the information they provide. At the same time, GenAI chatbots promote collaboration and inclusivity in contemporary, diverse classrooms (Kuhail et al., 2023), accommodating learners with varied information-processing preferences and cultural backgrounds, and enabling lecturers to implement new techniques and adopt innovative pedagogical approaches (Kasneci et al., 2023). Chatbots perform different pedagogical roles in HE, such as supporting, assisting, mentoring, and engaging in a typical teaching activity – “providing students with feedback” (Wollny et al., 2021, p. 1). This practice can visibly increase students’ motivation and engagement and support the development of applied competencies in the formative assessment processes in business undergraduate education (Rodríguez-Maya & Aylas-Flórez, 2025).

The research aimed to analyse students’ perceptions of ChatGPT-assisted feedback on draft submissions, using a three-dimensional framework across undergraduate business modules in Portugal, Mexico, and Ireland, with an AI chatbot programmed to provide feedback in a particular way. This approach ensured consistent feedback delivery across the three countries with embedded UDL principles, including the principle of multiple means of action and expression to reduce learning barriers and enable more learners to reach their goals (CAST, 2024). It thus offered students the option to resubmit improved assignments for a higher grade after receiving feedback from their lecturers and the chatbot.

The research sought to address the following questions: Is ChatGPT chatbot feedback valuable for students when provided alongside lecturers' feedback on assessment draft submissions, and why or why not? Will students be willing to use the additional ChatGPT chatbot feedback option in the future? What UDL pedagogical approaches can support the embedding of ChatGPT chatbot-assisted feedback in the assessment strategy, and how can these be developed further?

The article opened with an introduction and a brief literature review of the challenges and opportunities associated with using GenAI chatbot feedback in HE and business courses, along with the research aims, questions, and structure. It will then outline the research methodology and analyse the implications of the findings across the ‘functional usefulness–epistemic authority–cognitive load’ thematic framework, concluding with a discussion of UDL-informed pedagogical approaches and the study’s conclusions, limitations and future research.

2. Methodology

This study adopted a mixed-methods, cross-national research design to examine students' perceptions and experiences of AI-assisted feedback used as an add-on to the lecturer's feedback. The mixed method approach enabled further exploration of the issues identified and triangulation of findings to provide a more complete picture of students' experience (Creswell et al. 2023). Throughout the paper, 'AI-assisted feedback' refers to feedback generated by the ChatGPT chatbot and provided to students alongside the lecturer's feedback.

Surveys were conducted in each country, supplemented by focus groups in Ireland. Surveys enabled cross-country comparisons to identify students' experiences, and focus groups provided an in-depth understanding of students' perceptions and rich contextual insights.

Using the same survey instrument, the AI-assisted feedback intervention followed a standardised procedure across all three country contexts (Table 1). This procedure comprised four sequential stages: anonymisation of student submissions, rubric-informed chatbot feedback generation, students' revision and resubmission, and an additional feedback opportunity following the oral presentation.

Open-ended survey responses were obtained from 26 students in Portugal, 22 in Mexico, and 8 in Ireland (n=56). Incomplete surveys were excluded from the final results (n=45). The survey comprised open-ended questions addressing (i) perceived value of AI-assisted feedback, (ii) perceived benefits for revising draft submissions and identifying strengths and weaknesses, (iii) perceived changes in pedagogical approaches, including UDL, and (iv) suggested improvements and preferred feedback formats. The survey was developed in English and administered in English to students in Mexico and Ireland. For Portugal, the survey was translated into Portuguese, back-translated into English, and then reconciled back into Portuguese. This iterative translation procedure was implemented to ensure semantic equivalence and to minimise shifts in meaning across language versions.

In addition, focus groups were conducted with students in Ireland to gain deeper insights into the survey themes. Thematic analysis was used to analyse qualitative data from focus groups and surveys to identify emerging patterns. Proper measures were taken to ensure compliance with data protection regulations, and Ethical and AI guidelines for the three universities. Each country analysed the data and generated codes individually. Subsequently, the research team revised and double-coded the results to enable cross-case triangulation.

The assessment feedback design incorporated a UDL-informed approach by providing two complementary feedback channels (lecturer and chatbot) and an additional opportunity to revise draft work prior to final submission (Table 1). This design aimed to reduce barriers to engaging with just one type of feedback by providing different feedback options and to support diverse

learners in iterative improvement. The intent was to increase the accessibility and efficiency of feedback without replacing the lecturer's judgement in assigning grades.

Table 1. Summary of the AI-assisted feedback intervention and data sources.

Component	Description (implementation context)
Assignment and anonymisation	Students completed a course assignment; instructors anonymised submissions prior to processing.
ChatGPT configuration	Each anonymised submission was processed with the same prompt; assignment guidelines and the assessment rubric were provided to the chatbot to generate a feedback report aligned with lecturer criteria.
Feedback delivery and revision	The AI-generated feedback report was shared with students, who revised their work accordingly; final grading remained the lecturer's responsibility, and AI feedback was positioned as developmental support.
Resubmission and additional feedback	Students resubmitted revised assignments and subsequently delivered an oral presentation, which served as an additional feedback opportunity.
Student perception surveys	Students completed an open-ended survey capturing perceived usefulness, limitations, preferences, and suggestions for improvement.
Focus groups	Focus groups were conducted with students in Ireland to deepen interpretation and support participant triangulation.
UDL-informed assessment design element	The feedback design provided two channels (lecturer and chatbot) and an opportunity to revise drafts before final submission, aiming to support diverse learners and reduce learning barriers with additional oral feedback for oral assessment presentations

3. Findings

All findings were organised around three emergent dimensions that moderate perceptions of the usefulness or challenges of AI-assisted feedback as an add-on option: Functional usefulness ("timing"); Epistemic authority; and Cognitive load (feedback ergonomics) (Table 2).

Table 2. Thematic framework and operational indicators (cross-national study)

Dimension (theme)	Operational definition (what counts as evidence)	Illustrative codes / indicators used in the thematic workflow
1. Functional usefulness ("timing")	Statements describing how AI feedback supports revision and what role it plays depending on the stage at which it is used.	Generative scaffolding (initiating ideas/overcoming the "blank page"); diagnostic audit (detecting errors/validating missing criteria); structural refinement (reorganising already written text).
2. Epistemic authority	Statements about alignment or conflict between AI feedback and instructors'	Conflict/contradiction (anxiety regarding misalignment with the instructor's grade/criteria);

Dimension (theme)	Operational definition (what counts as evidence)	Illustrative codes / indicators used in the thematic workflow
	standards/rubric, including trust and assessment-related uncertainty.	references to reliance on instructor approval as legitimacy anchor.
3. Cognitive load (feedback ergonomics)	Statements describing difficulty processing AI feedback output, particularly volume, relevance, repetition, and extracting priorities.	Information overload (negative reaction to text volume/irrelevant detail); preference for shorter, more actionable, prioritised feedback.

Note: The table summarises the thematic structure and coding indicators used to organise the surveys and focus groups' results; it is intended to support interpretability and analytic transparency.

3.1. Indicator 1. Functional usefulness and the logic of “timing” in revision support

Across contexts, students primarily framed GenAI feedback as formative support for revising draft work rather than as a purely evaluative mechanism. However, the function attributed to this support varied by context and use. In Portugal, AI feedback was most frequently described as generative scaffolding used early to overcome the “blank page” problem and to ideate structure; one participant noted that it “saved time and helped at the beginning because we did not know where to start.” In Mexico, perceived usefulness focused on diagnostic audit and error detection in later drafts, while in Ireland, the predominant use case was structural refinement (reorganisation of already written texts). These patterns suggest a timing effect: perceived value increased when feedback was applied earlier, when revisions were experienced as less rigid, and decreased when applied later, when revision friction increased.

3.2. Indicator 2. Epistemic authority and assessment-related uncertainty

A central source of friction concerned epistemic authority, defined as the perceived alignment between AI feedback and instructors' assessment standards. The Ireland case exhibited the highest density of conflict/contradiction codes (“not a human and not a teacher”): misalignment generated uncertainty and increased the decision burden associated with determining which feedback to follow. Students explicitly linked lower trust to situations in which contradictions emerged, and human mediation was absent, as reflected in the focus group statement: “Contradictions between the lecturer’s feedback vs the AI... [we] do not trust it.” In contrast, Portugal articulated a filtering mechanism model characterised by higher agency, with students reporting that suggestions were evaluated and filtered through their own judgement and/or instructor criteria. Mexico displayed an intermediate stance, described as hierarchical dependence, in which AI was treated as a second opinion while the instructor remained the anchor of legitimacy.

3.3. Indicator 3. Usability barriers: cognitive overload and demands for actionability

Despite an overall positive orientation toward continued use, practical limitations were reported regarding the cognitive ergonomics of AI feedback. The Mexico cohort concentrated approximately 80% of the negative codes related to limitations, with information overload emerging as the dominant barrier. Students described feedback as excessively long, overly detailed, or repetitive, making it difficult to extract prioritised actions; one participant stated: “The amount of text was confusing; I would prefer a shorter text with more precise feedback.” By contrast, overload concerns were minimal in Portugal, where improvement requests focused on greater specificity and examples. In Ireland, the usability barrier manifested as frustration with repetition, which increased perceived task burden: “it complicates things, as some comments were not significant.” However, other students in Ireland noted that differences in focus between “AI-generated” (technical) and “lecturer” (conceptual) feedback made it easier to segregate and amend.

3.4. Preferences for feedback formats and future use intention

Responses from the surveys indicate predominantly positive adoption intentions, with unconditional future use more common than conditional use, uncertainty, or preference for human-only feedback, as shown in Table 3.

Table 3. Preferences for feedback format or future use intention (estimated distribution)

Future use intention/ format preference	Estimated %	Typical condition or rationale (illustrative)
Yes (Unconditional)	65%	Reported usefulness in supporting revision.
Yes (Conditional)	18%	Conditioned on instructor approval / alignment with lecturer standards (e.g., “Only if the professor approves its use”).
Prefer human feedback format	11%	Preference for concision and precision (e.g., “shorter and more precise feedback”).
Unsure	6%	Indecision regarding usefulness and/or trust.

Note: The estimated results for each category (intention or format) were calculated from the relative percentages of student responses, i.e., the proportion of students who provided an answer for a specific category, expressed as a percentage of the total number of students surveyed across the three countries.

Conditional adoption and preferences for human feedback were most frequently linked to the need for lecturer endorsement and assessment-aligned guidance, as well as expectations for concise, prioritised, and actionable feedback.

These preferences suggest that AI-assisted feedback was primarily positioned as a complement to, rather than a substitute for, the lecturer’s feedback. Where students framed future use as conditional, the condition functioned as a legitimacy requirement: AI output was considered

acceptable when it could be interpreted through lecturer standards and the assessment rubric, and less acceptable when it introduced ambiguity or perceived misalignment. Similarly, preferences for human feedback reflected usability expectations, particularly the desire to reduce cognitive load by receiving shorter, more precise, and better-structured feedback, highlighting the importance of feedback ergonomics for uptake. Taken together, the preference patterns reinforce the role of a calibration process in which students both validate epistemic authority and manage feedback volume to translate suggestions into revision actions.

4. Discussion: UDL-informed pedagogical approaches & AI-assisted feedback

The UDL element in the AI-assisted assessment feedback worked effectively, even where trust in AI-generated content was low. It allowed students to have a voice in curriculum design and fostered open discussions between lecturers and students about preferred formats and options for assessment feedback, making the assignment submission process more inclusive and beneficial for both parties.

The three-dimensional framework in the cross-country analysis helped further explore pedagogical approaches to support diverse learner needs and types. The timing indicator revealed the need for greater flexibility in providing AI feedback earlier during the assessment process to address different learning gaps (multiple means of action and expression). The epistemic authority and cognitive load indicators clearly demonstrated the need for better alignment between the rubrics and the chatbot feedback programming to support transparent and clear expectations of the final result and to avoid anxiety (multiple means of engagement), as well as the necessity for the chatbot to use more explicit vocabulary to improve understanding of the content by students of varying levels of English (multiple means of representation).

5. Conclusions, Limitations & Future Research

This cross-national pedagogical experience indicates that GenAI-assisted feedback can provide formative value in undergraduate business education, when it complements lecturer feedback within a draft–revise–resubmit design and is supported by the UDL pedagogical approaches. Students in Portugal, Mexico, and Ireland used the chatbot for revision in different ways depending on timing—early-stage idea/structure scaffolding, mid-stage diagnostic checks against criteria and errors, or late-stage structural refinement—suggesting a timing effect: perceived usefulness is higher earlier in the drafting process and lower when feedback arrives late, when revisions are more constrained.

Future research should include lecturers' perceptions and decision-making rationales, as students showed an adoption asymmetry: some students seemed more comfortable using GenAI independently to improve their work than relying on it as a feedback source, while others found

it very useful as an additional feedback option to maximise final grades or to address more technical rather than academic issues.

Based on research results, rubric-aligned GenAI feedback may reduce lecturers' workload and support procedural fairness by standardising baseline commentary and limiting variability arising from time pressure and idiosyncratic bias. However, strong governance is essential: AI should remain developmental and subordinate to academic judgement, with outputs auditable against assessment criteria. For tasks involving creativity, interpretation, or opinion-based argumentation, lecturers remain indispensable for both evaluation and verification of AI feedback. Implementation should also make clear that students' critical appraisal of AI output is central to learning; assessment designs can reinforce this by requiring justification of revisions, brief reflective accounts of feedback use, or structured validation checklists, and by incorporating inclusive assessment feedback design.

As limitations, it's important to note that this study is confined to undergraduate business modules, one semester, and one GenAI tool (ChatGPT), restricting generalisability across disciplines, levels, tools, and longer-term changes in students' perceptions and a broader experimentation with pedagogical approaches to support the integration of AI-assisted feedback methods. The paper also primarily captures students' perceptions, with limited attention to lecturer reflections, which should be explored in a subsequent research paper.

Acknowledgements

This study was supported by TecLabs – Novus Grant and benefited from the technical support of the Writing Lab, Institute for the Future of Education, Tecnológico de Monterrey, Mexico.

References

- Al-Zahrani, A. M. (2025). Exploring the Impact of Artificial Intelligence Chatbots on Human Connection and Emotional Support Among Higher Education Students. *SAGE Open*, 15(2), 21582440251340615.
- CAST. (2024). Retrieved from CAST Universal Design for Learning Guidelines version 3.0. : <https://udlguidelines.cast.org/>
- Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications.
- Jaime-Vargas, J. A. (2025). Generative AI for Enhancing Accessibility and Inclusion in Higher Education: A Systematic Review. *HighTech and Innovation Journal*, 6(2), 723–734.
- Kasneci E., S. K. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, 102274, ISSN 1041-6080.
- Kuhail, M. A., Alturki, N., Alramlawi, S., & Alhejori, K. (2023). Interacting with educational chatbots: A systematic review. *Education and Information Technologies*, 28(1), 973-1018.

- OECD. (2026). Exploring Effective Uses of Generative AI in Education. OECD Digital Education Outlook 2026.
- Office of Educational Technology (2023). Artificial intelligence and the future of teaching and learning: Insights and recommendations.
- O'Sullivan, James, Colin Lowry, Ross Woods & Tim Conlon. Generative AI in Higher Education Teaching & Learning: Principles for Ethical AI Adoption. Higher Education Authority, 2025. DOI: 10.82110/qmt6-jw48.
- Rodríguez-Maya, H.R.; Aylas-Flórez, E. C. (2025). The contribution of chatbots to student engagement: A case study from a Business School in Mexico. In: 11th International Conference on Higher Education Advances (HEAd'25). Valencia, 17-20 June 2025.
- Wollny, S., Schneider, J., Di Mitri, D., Weidlich, J., Rittberger, M., & Drachsler, H. (2021). Are we there yet? A systematic literature review on chatbots in education. *Frontiers in Artificial Intelligence*, 4, 654924.