CASE STUDY

Assessment design through co-creation: Student-staff partnership in evaluating the impact of artificial intelligence

Ellie Ingle *and* ****Andrew Williams****, Department of Education, Division of Medicine, University College London, UK.*

Contact: andrew.williams@ucl.ac.uk

ABSTRACT

This case study reports on a co-creation initiative that explored the use of generative artificial intelligence (AI) technologies in the context of higher education assessments. The AI Co-Creators project aimed to promote dialogue between students and staff on the impact of AI with the objective of using AI tools more effectively. The case study presents a collaborative partnership which focused on evaluating ChatGPT-generated output in response to diverse coursework assessments on an undergraduate medical sciences programme. The co-design of evaluation criteria and key findings are presented and resultant challenges faced by students and staff are explored through dialogue, interview, and thematic analysis. The value of the student-staff collaboration is explored from the perspective of the student, staff, and institution, while the benefits, limitations and recommendations for future co-creation projects are presented in the context of AI and higher education assessment and learning.

KEYWORDS

partnership, co-creation, change, artificial intelligence, ChatGPT, assessment, higher education

Co-creation and student-staff partnerships are crucial for fostering a collaborative learning community where partners learn from each other to enact curriculum change. This case study was part of an institution-wide co-creators initiative, aimed at exploring artificial intelligence (AI) tools collaboratively to promote dialogue among teachers and students. Engaging students as co-researchers and co-creators promotes the development of partnership learning communities (Cabral et al., 2023), leading to a deeper understanding of complex concepts and enhanced engagement, motivation, and enthusiasm (Healey, 2014; Healey & Healey, 2019). Although student partnership in higher education has historically been poorly valued, co-creation has several benefits, including promoting a sense of student belonging, reflection, and inclusivity (Healey, 2014). With diversifying student cohorts and the growing evidence that student partnerships have a positive impact on equitable engagement, institute-wide initiatives have gained popularity in several universities (Mercer-Mapstone & Bovill, 2020).

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AI Co-Creators projects were part of a broader ChangeMakers initiative at University College London (UCL), supporting dialogue between students and staff on education challenges (UCL, 2024a, 2024b). ChangeMakers projects, established in 2014, are open to all undergraduate (e.g. BSc, BA) and postgraduate students on taught (e.g. MSc) and research programmes (e.g. PhD) and have supported numerous education development, curriculum change, learning enhancement, cohort connectivity, and industry network projects, with student training supported by a dedicated education team. This case study evaluated the potential for AI to be incorporated into existing coursework assessments with a focus on a critical and reflective understanding of AI.

Many consider a departure from the traditional hierarchical structure of higher education as a positive development (Bovill, 2020; Mercer-Mapstone & Bovill, 2020). There is compelling evidence suggesting that institute-level partnership schemes enhance student engagement and alter the established culture to provide more credence to the student voice (Cook-Sather, 2006; Cook-Sather, 2011). Student-staff partnerships can also benefit educators by providing valuable feedback and insight on curriculum design and effective teaching practices (Strydom & Loots, 2020) and are therefore considered an equitable or democratic representation of "citizenship education" (McLeod, 2011).

STUDENTS AS PARTNERS IN ASSESSMENT DESIGN

Students who actively participate in co-creation initiatives "take full responsibility for their learning and use teachers and other resources to help them succeed" (Mavondo et al., 2004, p. 46; Zarandi et al., 2022, p. 1299). The co-creation or co-design of assessments further utilises the student experience and perspective and, although students are not experts in the discipline, they can make important contributions to change and improvements in assessment practice (Dollinger, 2018). The concept of students as partners further emphasises the role of students as equal participants and aims to promote teaching excellence in the context of learning and scholarship (Johnson, 2021). Furthermore, it has long been accepted that assessment has a profound influence on the way that students approach their education, which necessitates the careful design and structuring of assessment and teaching to support the student learning process (Biggs, 2003; Biggs et al., 2022).

The involvement of students in the design of assessment has been associated with improvements in self-regulated learning and enhanced understanding (Doyle et al., 2018; Hardy et al., 2014). For example, student-generated multiple choice questions (MCQs) can enhance higher-order cognitive and metacognitive skills in disciplines such as medicine, biochemistry, and engineering (Bottomley & Denny, 2011; Palmer & Devitt, 2006; Yu & Liu, 2008). Group assessment, peer-assessment, and peer feedback have been studied extensively in the context of enhancing self-regulated learning and self-reflection (Colson et al., 2022; Falchikov, 2013; Liu & Carless, 2006). The co-design of essay titles and marking criteria can also improve student engagement in the assessment process, as students feel empowered as participants in the decision-making process (Deeley & Bovill, 2017). This method is also aligned with an assessment-for-learning approach (Carless, 2005).

GENERATIVE AI AND ASSESSMENT

The emergence of generative AI has sparked discussions about academic integrity and the possible exploitation of such technology in student assignments (Sullivan et al., 2023). Despite these concerns, generative AI tools offer promising opportunities for enhancing student education and refining assessment methods (Holmes & Miao, 2023). As AI becomes increasingly prevalent, universities must ensure that students are equipped with the knowledge to effectively utilize this technology and understand both its capabilities and constraints.

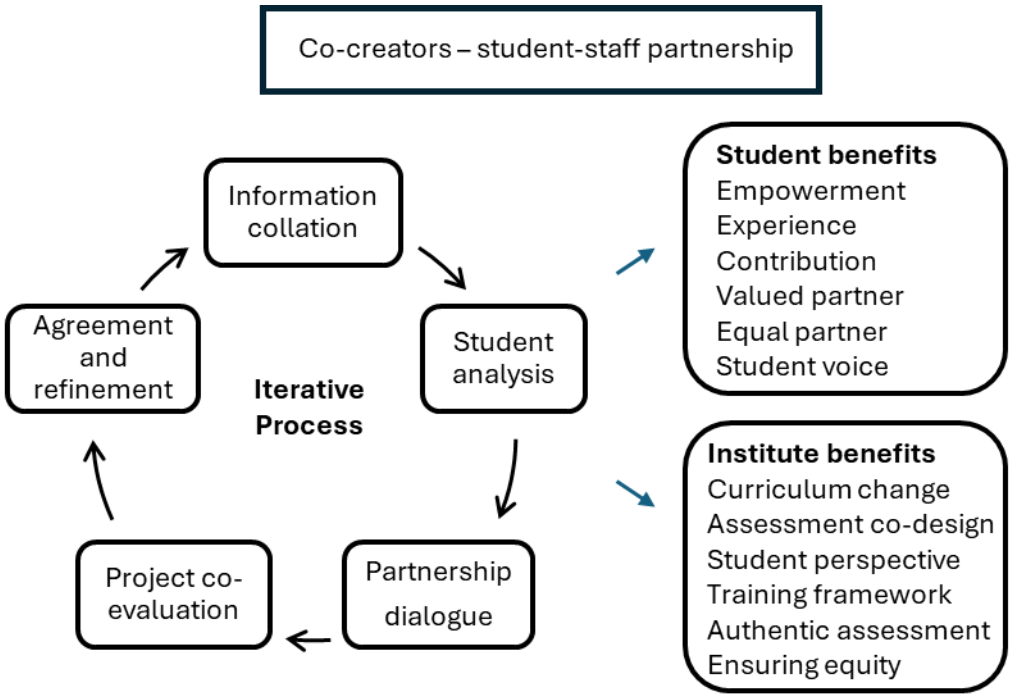
The rapid development and evolution of generative AI and large language models (LLMs) present significant challenges to both students and educators. Student perceptions on the use of AI are diverse, with support for its use as a learning assistant but concerns about its use in assessments (Kumar & Raman, 2022). Policies on the use of AI in higher education institutions are also diverse (Luo, 2024; Zouhaier, 2023), with many taking a progressive approach that prepares graduates for employment by incorporating AI into various aspects of teaching and learning. As AI technologies become common in the workplace, universities have a responsibility to train their students on its proper use, capabilities, and limitations. Student-staff partnership and co-creation projects are therefore central to developing new solutions to the current AI challenge.

APPROACH TO AI CO-CREATORS PROJECT

This case study was a partnership between an individual student and teaching staff member (the co-authors) and involved an evaluation of module assessments on an undergraduate medical sciences programme. The student partner had recently completed her second year and therefore had personal experience of the assessments being evaluated. This was considered particularly relevant to the project and to the co-design of existing assessment formats, as insight was sought from an experienced student.

AI Co-Creators projects provide an opportunity for students to influence education and to engage in dialogue with members of faculty. The dialogic nature of these projects was therefore best suited to working with an individual student, rather than several students (Mercer-Mapstone & Bovill, 2020). From the outset, it was important to establish a non-hierarchical and inclusive working environment, which emphasised staff and student as equal partners. We employed an iterative working strategy, involving in-person and online meetings, and established partner responsibilities (Figure 1). The student partner was responsible for collating assessment information and evaluating ChatGPT-generated output. The staff partner was responsible for providing academic support to the student partner, for example through mentorship and feedback on project progress, while both partners were responsible for the co-creation of assessment evaluation criteria and parameters. Throughout the project, the student partner's input and feedback were given space and priority, and the student was primarily responsible for driving the project.

Figure 1. Summary of iterative process and partnership benefits



Due to the novelty of generative AI, the recent release of ChatGPT, and the lack of research on the impact of AI on higher education assessment, the co-creation of applicable evaluation criteria was required. As part of the co-creation, we designed seven key criteria associated with both potential positive and negative impacts of generative AI (Table 1). These were based on the UNESCO guidelines and recommendations on the use of generative AI in education and research (Holmes & Miao, 2023; Sabzalieva & Valentini, 2023) and in alignment with established pedagogical applications and JISC guidelines for generative AI in assessments (Gamage et al., 2023; Webb, 2023). The evaluation criteria were therefore designed around three main themes: application of ChatGPT to higher education teaching and learning, challenges and ethical implications, and adapting to ChatGPT in higher education (Sabzalieva & Valentini, 2023). These criteria were designed to promote a discursive evaluation of our current coursework assessment. ChatGPT 3.5 (https://openai.com/chatgpt) was used to generate responses to coursework instructions (OpenAI, 2024). Through iterative dialogue, ChatGPT-generated output was co-evaluated according to the criteria.

The student partner was initially tasked with gathering assessment information, including questions, instructions, and marking criteria, following an initial collation by the staff partner. This gave the student partner a deep appreciation of the diversity of assessment across the programme, enabling the student to approach the evaluation process from a position of authority. Of particular interest to the student was the potential benefit to the student experience and implications regarding equitable access to generative AI technology. Therefore, the project allowed the student to become more considerate of student requirements at a cohort level.

Table 1. Outline of criteria designed and evaluated during the partnership

CRITERION	DESCRIPTION
1	Potential impact on academic integrity of ChatGPT on existing coursework assessments.
2	Key challenges that coursework assessments may face regarding ChatGPT.
3	How is the coursework applicable to incorporating ChatGPT in learning and formative and summative assessment?
4	Key challenges for students and staff.
5	Potential impact on the student experience.
6	Description of how ChatGPT may be incorporated into existing coursework assessment designs.
7	Analysis of an example ChatGPT 3.5-generated output in response to each coursework assessment instruction.

Both partners agreed that the main impact of ChatGPT would likely be on academic integrity and the potential use of AI for committing plagiarism. It was noted that this is not just an issue for educators and institutions but also directly impacts students' approaches to conducting assessments, as the student partner highlighted concerns around equity and fairness in grading. It was further agreed that both staff and students face challenges regarding the impact of AI on assessments. Following co-evaluation, training for staff and students on the capabilities, limitations, and ethical use of generative AI was recommended.

The student partner highlighted several ways that ChatGPT could be incorporated into the student learning experience; for example, as a more inclusive form of formative assessment, as a learning assistant, as an auxiliary tool to provide feedback, and for proofing student work. Each category was assigned a level of applicability following a review and analysis of all forms of assessment included in the project (Appendix, Table 2). The student partnership therefore highlighted the inclusion of generative AI in aspects of education that were more student-centric, underlining the benefits of the staff-student partnership.

SUMMARY OF KEY FINDINGS

The main finding was that no form of coursework assessment was completely immune to ChatGPT interference, an important outcome that was agreed by both partners. In addition to evaluating the direct impact if AI, the project intended to cultivate discussions between students and staff on the possibilities and limitations of AI in assessments. The findings were not definitive but provided several possibilities for incorporating generative AI into coursework assessments or to support student learning at programme, departmental, and institutional levels (Appendix, Table 2). Designing new or repurposing existing assessments to incorporate generative AI technology will require consideration, time, and further discourse. This co-creation partnership may therefore be beneficial for the development of training and evaluation frameworks and for students and staff to adapt exiting knowledge, as new AI technology emerges.

STUDENT PERSPECTIVE ON AI CO-CREATORS PROJECT

Student-staff partnerships can be influential for the delivery of contemporary university education. Traditionally, assessments are designed by staff in isolation and although this generates assessment formats that reflect teaching material or learning outcomes, it may not effectively reflect student learning needs. In this context, co-creation can assist with student and staff assessment literacy (Smith et al., 2013).

From a teacher perspective, the goal of assessing students is to test their knowledge acquired during their programme of study, which may limit an assessment's capacity to allow students to practice and develop key skills for future study or employment. By designing an assessment in partnership with students, the assessment may provide a deeper insight into how students approach the task and therefore better support student skills development. Furthermore, assessment co-creation provides an opportunity for students and teachers to lessen the negative impact of misalignment between differing assessment expectations (Boud et al., 2018).

A structured interview with the student partner was undertaken to gain an understanding of the student perspective on (a) using generative AI in university assessments, (b) the value of co-creation partnerships, and (c) institutional and broader implications of the impact of AI. Following the interview, a transcript of the recording was made, which was then subject to thematic analysis according to the methods employed by Braun and Clarke (2006), independently of the student partner (Braun & Clarke, 2006, 2012). The main themes that emerged included transforming university assessment through generative AI, empowering education through co-creation, and navigating institutional and ethical landscapes (Appendix, Table 3).

Transforming education through the use of generative AI has been discussed elsewhere (Gamage et al., 2023; Perkins, 2023), and the perspectives of the student partner echoed both concerns around academic integrity and equitable access. The student partner highlighted the potential opportunities for integrating generative AI into assessments and to enhance student learning; for example, through continued and constructive feedback (Imran & Almusharraf, 2023; Rudolph et al., 2023). The following quotations from the student partner were chosen post-interview to emphasise the student's perspective on the integration of AI in assessment co-design.

- "It gives students the platform to give constructive feedback on the appropriateness of assessments to ensure that they are properly aligned with learning objectives."
- "Through student-staff collaborations, future assessments can be challenging and representative of teaching whilst still being fair and relevant to developing the students' learning."
- "The project is an important step forwards in realising that AI will inevitably become part of modern education."
- "[The co-creation project] demonstrates an ability of staff to continue improving how education is delivered to students to best reflect the real world."

An important theme that emerged was empowering education through co-creation. The student partner considered the process to be highly rewarding with regard to her contributions

and felt she had provided valuable feedback, which would be beneficial when designing assessments and teaching plans (Figure 1). The collaboration enabled her to discuss ideas she may not have considered as an independent participant. Allowing the student to take responsibility for elements of the project was a powerful device for empowering the student partner, allowing her to be an active participant in the co-design of an important aspect of her education. For example, the student partner shared the following perspectives on the AI Co-creators project collaboration.

- "Undertaking this project showed me just how achievable student-staff collaborations are—we were able to effectively work independently on different areas of the project and also schedule time to work together and review each other's input. The time spent reviewing each other's ideas helped propel the project forwards."
- "It was a fulfilling experience knowing that the work I was doing would be able to directly contribute to improving the learning experiences of other students in my position. The project has also made me more reflective in my own learning day to day because I spent time during this project evaluating what the point of assessments were and understanding what staff aimed for students to achieve in completing them."

The co-creation project was valuable for gaining insights from a student with experience in undertaking the assessments. The students-as-partners project involved a flexible and iterative approach, whereby the student undertook the majority of the analysis. Hybrid meetings were then conducted, allowing both partners to assess the generative AI output and formulate final evaluations based on co-designed criteria. The volume of assessment information and analysis required meant we could cycle between periods of analysis (student-led) and dialogic evaluation (both partners). The combined outcome of these iterations benefited from positioning the student as an equal partner, which further helped build trust and empower the student to be a pro-active participant.

STAFF AND INSTITUTIONAL PERSPECTIVES

Important insights were gained from the student partner that would not have been considered independently. For example, the personal experience and insight of the student, who had previously undertaken some of the assessments, were constructive, and the student was effective at identifying several areas where ChatGPT could impact coursework assessments. The partnership identified several key findings, notably that no existing coursework assessment was immune to ChatGPT, which will have important implications for the way that assessments are currently regulated and designed in the future.

Understanding the capabilities, limitations, inherent biases, and ethical implications of generative AI use are complex. An emerging theme was that co-creation and student-staff collaborations are ideally positioned to scrutinise generative AI use, capitalizing on differing perspectives and expertise (Bovill, 2020). Furthermore, co-creation projects such as this will contribute to institutional policy on the use of generative AI in assessments and in the classroom, thereby benefiting existing and future cohorts of students across the college (Figure 1).

LIMITATIONS AND RECCOMENDATIONS

The current case study was limited in the scope of assessment formats that were evaluated, as it concentrated on existing coursework assessments within year 1 and year 2 of an undergraduate programme. Extending the sample to evaluate similar assessment formats in year 3 and postgraduate-taught MSc assessments would broaden our understanding of the capabilities of ChatGPT-generated output. Further extending the evaluation to different assessment formats, such as MCQs and short answer questions (SAQs), and their susceptibility to ChatGPT-generated output, would also improve our understanding of the impact of generative AI.

An important aspect of the partnership was to identify coursework assessments that might be amenable to incorporating ChatGPT use. This presents further collaborative opportunities for students and teachers to work together to design novel coursework formats and to co-create or co-design teaching material that supports student learning (Colson et al., 2022). Collaboration with more students and with students from diverse backgrounds would also be important to improve inclusivity and equity in designing curricula that support AI technology (Mercer-Mapstone & Bovill, 2020). The current study identified critical thinking, self-reflection, and data interpretation as areas where students could work collaboratively with generative AI tools without impinging on institutional academic integrity policies (Perkins, 2023). The student revealed important insights into the benefits of the partnership. A reciprocal interview of the staff partner would have garnered further insights and is a recommended strategy for future studies. The different needs, expectations, and experiences of students and staff are key in making co-creation projects successful, which may have lasting and beneficial impact on higher education assessment and teaching practices in the context of the rapid developments in AI technologies.

This was an open-ended co-creation project that aimed to foster further discussions on using AI in assessments, teaching, and learning practices. Further collaborations and partnerships are therefore encouraged to identify areas of existing curricula that could be developed in light of generative AI. The creativity and unique perspective of students should be utilised and nurtured by educators when designing new and novel teaching and learning materials, which will ultimately support student employability and professional skills acquisition in a world where AI will undoubtedly have an extensive influence.

NOTE ON CONTRIBUTORS

Ellie Ingle *was a graduate student at University College London (UCL).*

Andrew Williams *is a Professor of teaching at University College London (UCL).*

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APPENDIX

Table 2. Summary of key findings from AI Co-Creator project

NUMBER	DESCRIPTION
1	No coursework format is completely immune to ChatGPT use.
2	The standard assessment paradigm (MCQs, SAQs, essays) may be particularly susceptible to ChatGPT-generated output.
3	ChatGPT displays inherent bias in some generated answers.
4	ChatGPT is beneficial for generating basic understanding/concepts, but more limited in generating detailed scientific outputs or higher-order components.
5	ChatGPT is poor at critical thinking, critical evaluation, making judgements, self-reflection, image analysis, and data interpretation.
6	ChatGPT is poor at accessing and evaluating the scientific literature, especially post-2021 publications.
7	Although ChatGPT does not generate diagrams/figures/presentations, it is capable of generating information required for their production.
8	ChatGPT may be more capable of generating level 4 (year 1) material compared to level 5 (year 2, or above) that requires deeper understanding and critical analysis.
9	Training on generative AI is required for both students and staff.
10	It is important to ensure students have equal access to AI tools.
11	Correct referencing of ChatGPT prompts and responses should be taught.
12	Encourage students to avoid using ChatGPT to generate substantive text and therefore avoid issues regarding academic integrity.
13	Emphasis should be on students developing key academic skills, such as reflection, critical thinking, and critical evaluation.
14	Generative AI may be useful for formative exercises to support student learning.
15	Embedding generative AI technologies into module curricula and teaching practices could benefit student learning.

Table 3. Thematic analysis on student partner interview

THEME	ANALYSIS
Transforming university assessment with generative AI	This theme explores the integration of AI in assessments, focusing on enhancing critical thinking and the potential to promote student learning. It further addresses challenges, such as AI limitations and issues with academic integrity and plagiarism.
The value of co-creation partnerships	This theme highlights the value of collaborative partnerships between students and staff in developing AI tools and assessments. The mutual benefits are that students gain valuable insights and skills, while staff can tailor educational tools more effectively to student needs.
Navigating institutional and ethical landscapes	This theme addresses the broader implications of AI, including academic integrity, equity, and future curriculum development. Embedding AI training for staff and students can help mitigate plagiarism risks and train students for employment in an AI-driven society.