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Guide of ethical use of LLM generative AI Systems in Higher Education

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Executive Summary

This Guide provides practical, role-specific guidance for the responsible adoption of Large Language Models (LLMs) and Generative AI (GenAI) in higher education. It synthesizes current institutional practices and scholarship to help educators, students, and university leaders make informed, values-aligned decisions about when and how to use GenAI. The work draws on a thematic analysis of materials from 20 leading European universities and on six collaboratively developed case studies gathered within the ADMIT partnership, offering a balanced view of opportunities and risks in real academic settings.

The present document is anchored in a taxonomy of eight ethical dimensions: Educational Impact & Academic Integrity; Privacy & Data Governance; Societal, Individual & Environmental Wellbeing; Teacher/Student Agency & Oversight; Diversity, Non-discrimination & Fairness; Accountability; Transparency; and Technical Robustness & Safety. These are operationalized through thirty indicators that institutions can use for self-assessment and policy design. It can be read alongside the AI-LD Activity Framework, which complements this ethical lens with concrete support for the design of AI-enabled learning activities.

For educators, the report highlights clear benefits (efficiency gains, richer materials, more responsive feedback, and new assessment designs) while underscoring duties around accuracy checking, disclosure, bias awareness, and safeguarding of learner data. It advises treating GenAI as assistive, not substitutive; maintaining human oversight in grading; and avoiding external uploads of student work without institutional approval.

For students, it frames GenAI as a tool to enhance (not replace) learning, communication, and coding fluency, while warning against plagiarism, over-reliance, and uncritical acceptance of outdated, biased, or fabricated outputs. It emphasizes disclosure of permitted use and careful handling of personal or confidential data.

Lastly, at the institutional level, this handbook sets out the strategic benefits (process modernization, inclusive access, and evidence-informed decision-making) and the key risks, including policy fragmentation, privacy and IP exposure, environmental impact, and inequity from paywalled tools. It converts these into concrete governance measures across hiring, tutoring and support, assessment, and exam integrity among them human review of AI decisions, clear disclosure to users, minimal and regulated data collection, equitable access, and opt-out options in high-stakes contexts.

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1. Introduction

The emergence and rapid spread of Large Language Models (LLMs) and Generative AI (GenAI) systems mark a new era in higher education (McDonald et al., 2025). These systems, capable of generating natural language, processing information, and supporting complex cognitive tasks (Suriano et al., 2025), have already begun to significantly influence both teaching practices and student learning (Upadhyay et al., 2024). Their adoption in university settings is evident in their integration into various previously time-consuming processes, where they have the potential to act as cognitive accelerators, enhance learning effectiveness, support personalized educational experiences, and provide real-time feedback (Peláez-Sánchez et al., 2024). From assisting with academic writing and literature searches to enabling the development of interactive teaching assistants and automated assignment assessment, LLMs are emerging as catalysts for a broader pedagogical transformation (Asy'ari & Sharov, 2024).

At the same time, however, there are reservations, and even strong concerns, about the implications of using LLMs in higher education (Hosseini et al., 2023). Critics argue that the uncritical adoption of these technologies may compromise fundamental principles of academic integrity, foster student dependence on automated tools at the expense of critical thinking and exacerbate existing social and technological inequalities among students with varying levels of access and digital literacy (Yan et al., 2024). Concerns have also been raised about the transparency of language models, the reliability of the responses they generate, and the safeguarding of personal data within educational contexts (Li et al., 2023).

Developing guidelines for the ethical use of GenAI and LLMs in higher education is a particularly complex challenge (An et al., 2025). This complexity stems in part from the multitude of parameters that must be considered, the diverse ethical dimensions involved, and the varying concerns that arise depending on the roles and perspectives of different stakeholders within the academic community (Ojha et al., 2025). Although considerable efforts have been made to draft relevant guidelines (Mavroudi, 2023; Li et al., 2024; Nguyen, 2025), a comprehensive framework that addresses the heterogeneous needs, concerns, and priorities of higher education institutions has yet to emerge. Against this backdrop, the present study represents a collaborative research initiative, which involves several universities, aiming to contribute meaningfully to this evolving discourse.

1.1. Purpose of the Guide

The purpose of this guide is to support the responsible and ethical integration of LLMs and GenAI in higher education. It is intended for all key stakeholders - educators, students, and institutional leadership - and serves as **a practical resource for understanding, evaluating, and making informed decisions regarding the ethical use of these emerging technologies**.

A key sub-objective of this initiative is to identify and present both the benefits and potential risks associated with the use of GenAI, considering the specific needs, challenges, and responsibilities of each distinct role within the academic environment. This approach draws on a thematic analysis of content from the official websites of 20

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leading European universities, aiming **to capture both the reported benefits and the acknowledged risks reflected in current policies and practices** related to the integration of these technologies in higher education.

Another key sub-objective **is to analyze 6 case studies**, building upon the existing taxonomy of ethical issues developed in the frame of the European Cooperation Partnership ADMIT (genarative Ai anD large language Models In higher educaTion, project number 101134520). These case studies are developed with the 11 European higher education institutions in the partnership, and are informed by focus-group sessions with 12 participants. The analysis focuses on the ethical dimensions of LLM and GenAI use in educational contexts, with the aim of contributing to the development of a coherent framework for interpretation and comparative evaluation.

It is worth noting that this Guide may be read in conjunction with the **AI-LD Activity Framework**, a related deliverable (T4.3 - Developing the LLM-ed framework for the integration of LLM guidelines in teaching and learning design models) of the same research project. The Framework is a valuable tool focused on the pedagogical design of activities supported by GenAI and is also grounded in the same taxonomy and ethical framework of eight dimensions (such as transparency, accountability, and inclusion), as presented in this document.

1.2. Key Definitions and Concepts

Before proceeding to the main part of this guide, it is important to provide some fundamental definitions and explanations of key terms, ensuring accessibility for readers who may not be familiar with these technologies. In particular, it is essential to clarify three closely related concepts: Artificial Intelligence (AI), GenAI, and LLMs.

1.2.1. What is Artificial Intelligence?

Artificial intelligence (AI) is the capability of computational systems to perform tasks typically associated with human intelligence (Russell and Norvig, 2021).

AI-based systems can be purely software-based, acting in the virtual world (e.g. voice assistants, image analysis software, search engines, speech and face recognition systems) or AI can be embedded in hardware devices (e.g. advanced robots, autonomous cars, drones or Internet of Things applications) (High-Level Expert Group on Artificial Intelligence, 2019).

1.2.2. What is Generative AI?

Generative Artificial Intelligence – GenAI is a subfield of AI and refers to a specific subset of AI in which applications are trained on large datasets to improve their performance on various tasks and to generate original content, such as text, code, images, video, and audio, based on the patterns they have learned (King's College London, n.d.-a). GenAI typically functions by predicting the next word or element in a sequence using its training data. Through this process, it can produce complex and coherent outputs, including well-structured written content (University of Amsterdam, Teaching and Learning Centres, n.d.-a).

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1.2.3. What are Large Language Models (LLMs)?

Large Language Models (LLMs) are a specific category of GenAI designed to process and generate natural language. They are among the most widely used AI tools today and are often referred to as chatbots due to their capacity for interactive, dialogue-based communication. Prominent examples include ChatGPT (OpenAI), Gemini (Google), and Claude (Anthropic), all of which have been trained on massive datasets - often comprising extensive text from across the internet - with the aim of understanding, modeling, and reproducing complex language patterns (University College London, 2023).

When given a question or prompt, LLMs generate text by calculating the sequence of words that is most likely to fit the linguistic context of the input. While they often give the impression of "understanding" what is being said, they do not possess consciousness or genuine comprehension. Instead, they operate based on statistical probabilities, producing text that aligns with learned patterns rather than any form of true semantic understanding (University of Bristol, n.d.-a).

1.3. Overview of Ethical Dimensions

To identify the key dimensions of the ethical use of GenAI in higher education, particular emphasis was placed on official guidelines - such as those issued by UNESCO (2021) and the European Union (2022) - as well as on comprehensive literature reviews on the topic (Selwyn, 2023; Şenocak et al., 2024). Based on this analysis, a taxonomy was developed comprising eight dimensions and thirty indicators designed to measure relevant ethical variables (Carbonel et al., 2024; https://doi.org/10.5281/zenodo.17201673). These dimensions are defined as follows, while their corresponding measurement indicators, identified in the literature, are presented in the Appendix.

1.3.1. Educational Impact and Academic Integrity

This dimension centers on the core principles of educational practice and academic ethics, evaluating the extent to which GenAI aligns with foundational educational values and meaningfully contributes to the learning process.

1.3.2. Privacy and Data Governance

This dimension addresses the protection of personal data and its responsible management within the context of using GenAI in higher education. Given that GenAI models depend on vast datasets, often containing sensitive or personal information, adherence to key data protection principles such as transparency, purpose limitation, security, and informed consent is essential.

1.3.3. Societal, Individual, and Environmental Wellbeing

This dimension focuses on fundamental principles related to sustainability, environmental responsibility, social and individual impact, and the promotion of democracy and collective well-being. Assessment under this dimension evaluates the extent to which practices or technologies (such as GenAI) contribute positively or negatively to society, individuals, and the environment.

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1.3.4. Teacher and Student Agency and Oversight

This specific dimension examines whether individuals involved in the educational process possess the necessary digital and technological competencies to make informed decisions regarding the use of AI. It emphasizes the autonomy of educators in choosing how to integrate GenAI tools into their teaching, as well as the ability of students to opt out of using such technologies without facing negative consequences.

Additionally, this dimension highlights the importance of robust supervision and support mechanisms that enable educators to intervene when needed, for instance, in cases where technology might mislead students or have unintended emotional impacts. Ultimately, it assesses the extent to which GenAI tools genuinely empower both teachers and students, fostering their active, responsible, and ethically aware participation in the learning process.

1.3.5. Diversity, Non-discrimination, and Fairness

This dimension focuses on ensuring inclusivity through accessibility, universal design principles, and the proactive avoidance of bias. It assesses whether GenAI technologies are accessible to all users - particularly students with disabilities - without technical, cognitive, or socio-economic barriers. Furthermore, it examines whether these technologies embed or reproduce biases that may disproportionately affect certain groups. An additional area of focus is the presence of institutional processes for identifying, monitoring, and addressing such inequalities to promote fairness and equal opportunity in educational environments.

1.3.6. Accountability

It explores the degree of control and transparency associated with the use of GenAI technologies, as well as the mechanisms in place to ensure responsible management of any negative consequences. It emphasizes the importance of clear institutional policies, defined procedures, and formal agreements governing the deployment of these tools. Key areas of focus include the assignment of responsibility in the event of errors or harm, the availability of channels for users to submit complaints or seek redress, and the overall capacity of institutions to enforce ethical standards in the use of AI systems.

1.3.7. Transparency

This dimension relates to the traceability, explainability, and clarity of communication surrounding the operation of AI systems. It assesses whether key information, such as the structure of the model, its training data, and its functioning is accessible and understandable to both educators and students. Additionally, it considers whether the system offers clear and interpretable justifications for its outputs or decisions. A lack of transparency can undermine trust, hinder critical engagement, and limit the effective integration of AI technologies into teaching and learning processes.

1.3.8. Technical Robustness and Safety

This dimension addresses the protection of data, the ongoing monitoring of AI system performance, and the maintenance of system reliability through regular audits and crisis response protocols. It evaluates whether robust security measures are in place

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to prevent data breaches, corruption, or unauthorized access. Additionally, this dimension considers the existence of contingency plans for technical failures and procedures that ensure the continuity of the educational process in the event of system outages or disruptions.

2. The Role and the Responsibilities of Educators

The integration of GenAI tools into higher education is reshaping the roles and practices of educators. On one hand, these technologies offer new opportunities to enrich teaching, personalize learning experiences, and foster academic efficiency and creativity. On the other hand, they also introduce challenges concerning tool reliability, the preservation of pedagogical autonomy, data protection, and the assurance of educational quality. The following section outlines the primary benefits and potential risks of GenAI use from the perspective of educators.

2.1. Benefits for the Educators

AI presents growing potential to enhance the educational process through a diverse array of available tools (University of Bristol, n.d.-a). Its creative application through GenAI can empower educators across multiple levels - ranging from curriculum design and instructional planning to continuous assessment and personalized feedback.

Also, AI may offer substantial support to educators, particularly those in the early stages of their academic careers (ETH Zürich, 2024). By leveraging advances in natural language processing, GenAI has the potential to assist with repetitive tasks (University of Glasgow, n.d.-a; University of Oxford, n.d.-a), such as generating assignment frameworks or summarizing lengthy texts (University of Glasgow, n.d.-a). While the outputs of LLMs still require review to ensure alignment with teachers' objectives and authors' intentions, this functionality can in many cases enable educators save valuable time (University of Oxford, n.d.-a; The University of Manchester, n.d.-a; University of Bristol, n.d.-b) and thereby contribute to enhancing their effectiveness in both teaching and research (The University of Manchester, n.d.-a; University of Bristol, n.d.-b; University of Oxford, n.d.-b).

In the context of teaching, GenAI is emerging as a tool with wide-ranging and multidimensional applications (ETH Zürich, 2024; KU Leuven, n.d.-a). It can assist educators in the development of instructional materials (EPFL, n.d.-a; King's College London, n.d.-b), support the differentiation of teaching units to meet diverse student needs (The University of Manchester, n.d.-b), and provide real-time, subject-specific examples to enrich classroom delivery (University of Oxford, n.d.-a). Furthermore, GenAI can facilitate the simulation of real-world scenarios to deepen students' understanding of theoretical concepts (University of Glasgow, n.d.-b) and serve as an interactive practice partner, fostering engagement and reinforcing learning through dynamic interaction (University of Amsterdam, Teaching and Learning Centres, n.d.-a).

Moreover, GenAI seems well-suited to enhance the stylistic quality and clarity of educators' written materials (The University of Manchester, n.d.-b; University College London, n.d.-a; University of Cambridge, n.d.-a; University of Helsinki, n.d.-a) and can help stimulate creativity by suggesting new ideas and perspectives (University

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of Oxford, n.d.-b; Teaching and Learning Centre, University of Amsterdam; University College London, n.d.-a; University of Cambridge, n.d.-a; KU Leuven, n.d.-b). It also contributes to the enrichment of pedagogical materials in ways that are accessible to all students (École Polytechnique Fédérale de Lausanne, n.d.-b). This inclusive potential is a central motivation behind the integration of GenAI in higher education: to ensure equitable access to learning opportunities (The University of Manchester, n.d.-b), eliminate barriers, and respond to the diverse needs of students (École Polytechnique Fédérale de Lausanne, n.d.-b) within an inclusive educational environment (King's College London, n.d.-b).

Additionally, GenAI tools can support educators in tailoring their instructional approaches (University of Helsinki, n.d.-a) in ways that align with the principles of personalized learning (Technical University of Munich, 2023), for instance by assisting in the preparation of individualized feedback drafts (Teaching and Learning Centre, University of Amsterdam; KU Leuven, n.d.-b). In doing so, it opens new possibilities for innovation in both assessment and formative feedback practices (ETH Zürich, 2024).

In the field of research, university educators now benefit from a powerful support mechanism that fosters value creation and enhances productivity (University of Oxford, n.d.-b). Tasks that once demanded significant time and effort - such as transcribing audio material - can now be carried out with much greater efficiency (University of Cambridge, n.d.-a). Similarly, processes such as scientific writing and data analysis are significantly accelerated by the use of GenAI tools (University of Oxford, n.d.-b; LMU Munich, n.d.). At the same time, this evolving research landscape presents opportunities for educators to further develop essential academic competencies, particularly critical thinking skills (Teaching and Learning Centre, University of Amsterdam), which remain fundamental to the advancement of rigorous and reflective scholarly work.

Lastly, in terms of assessment, GenAI holds significant potential to redefine and enhance existing approaches (King's College London, n.d.-c). It can assist teachers in designing various types of assessments, including writing questions and related instructions (University of Bristol, n.d.-a). Moreover, it can support the development of more complex assessment formats, such as case study scenarios tailored to specific learning outcomes (University of Glasgow, n.d.-c). GenAI can also enhance the formulation of assessments that foster students' critical thinking skills (University of Bristol, n.d.-c). At the same time, it can reduce the likelihood of collusion and support personalized assessments by considering individual student interests and characteristics (University of Glasgow, n.d.-d). Finally, GenAI can aid in detecting plagiarism in submitted work, thereby supporting educators in maintaining academic integrity (King's College London, n.d.-c).

2.2. Risks for the Educators

The use of GenAI and LLMs in higher education, while offering undeniable benefits as previously discussed, also presents significant risks for educators themselves (LMU Munich, n.d.-a). These risks are inherent not only in their application to teaching and assessment but also in the development of educational materials and the conduct of academic research.

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The integration of GenAI into teaching practice requires particular caution, primarily due to the potential bias that may affect its outputs. The algorithms on which it relies are often trained on problematic or non-representative datasets, making it essential to critically assess any information before using it in the classroom (École Polytechnique Fédérale de Lausanne, n.d.-b). For this reason, it is especially important to avoid the misconception that GenAI tools can replace traditional teaching methods; rather, they should be viewed as complementary tools intended to enhance the learning experience within the classroom (King's College London, 2025-a). In this context, their use should not require students to provide personal data, nor should it impose any financial burden on them (University of Zurich, n.d.).

Furthermore, when using these tools to create educational materials, the teacher must also carefully assess the accuracy and reliability of the information intended for inclusion (École Polytechnique Fédérale de Lausanne, n.d.-a). Otherwise, the generated content may reflect bias, as language models are often trained on data that is neither current nor representative (University of Cambridge, n.d.-a; ETH Zürich, 2024). This may lead to the perpetuation of stereotypes or prejudices, raising serious ethical concerns (KU Leuven, n.d.-c). Even greater sensitivity is required when the material under development addresses social, cultural, or other sensitive issues, as the unchecked use of GenAI in such contexts may result in unintended and potentially harmful outcomes (The University of Manchester, n.d.-a; University of Bristol, n.d.-b).

In the context of research, educators must also be aware of several risks associated with the use of GenAI. These tools can sometimes produce information that appears credible but lacks factual accuracy or logical consistency - a phenomenon known as "hallucination" (École Polytechnique Fédérale de Lausanne, n.d.-a; University of Amsterdam, Teaching and Learning Centres, n.d.-a; University of Bristol, n.d.-e; University of Glasgow, n.d.-g). This issue becomes particularly critical when preparing work for publication, as there is a risk of publicly disseminating inaccurate content or referencing non-existent sources (The University of Manchester, n.d.-a; University of Bristol, n.d.-b). For this reason, it is essential that teacher-researchers thoroughly verify all AI-generated content included in their work and remain vigilant for potential errors or misleading information (KU Leuven, n.d.-c; University of Glasgow, n.d.-f). Moreover, in the case of qualitative research, special care must be taken to ensure that no personal or sensitive data is processed using GenAI tools, to uphold ethical standards and data protection regulations (The University of Manchester, n.d.-b).

Significant risks also arise from the potential use of GenAI tools in student assessment and grading. Since GenAI-generated texts are produced through probabilistic models, it can be particularly difficult to detect signs of plagiarism. As a result, it is crucial that educators closely examine students' work and assess their practices with care before drawing conclusions. At present, even standard plagiarism detection software is not equipped to reliably identify content generated by GenAI tools (King's College London, 2025-b; University of Cambridge Blended Learning Service, 2025). Additionally, the practice of uploading student work to externally hosted GenAI platforms introduces serious privacy concerns. This should be strictly avoided unless the tool has been formally reviewed and approved by the university’s IT services (University of Bristol, n.d.-a).

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Finally, in the context of examinations - particularly those conducted remotely - there is a risk that the educator may inadvertently assess the output of an AI system rather than the student's genuine performance and learning abilities (KU Leuven, n.d.-a). This makes the educator's role even more critical. Where permitted, instructors should critically evaluate and, if necessary, adapt the assessment format to ensure that it accurately captures the student's authentic understanding and skills (University of Bristol, n.d.-c).

2.3. Case Studies

The following case studies illustrate two central areas where GenAI directly impacts educators in higher education: student assessment and course content creation. As institutions integrate AI into teaching and evaluation processes, faculty members face new ethical responsibilities, including ensuring fairness in grading, maintaining academic integrity, and balancing efficiency with originality. These scenarios highlight the growing tension between technological convenience and professional autonomy, and they underscore the need for clear guidelines, transparency, and support structures to help educators navigate this evolving landscape.

2.3.1. Case Study: AI-Powered Student Assessment

The first case study examines the ethical challenges faced by educators when using GenAI systems for student assessment in higher education. It focuses on how issues such as accountability, transparency, fairness, and agency affect the professional responsibilities, autonomy, and pedagogical practices of teaching staff.

Figure 1: Image generated using ChatGPT (GPT-4o, OpenAI) from the prompt 'two students and a teacher discussing AI documents

Scenario: "*A university integrates a GenAI system to grade student essays. The system is trained on past high-scoring papers but lacks transparency in its decision-making. Students receive grades without clear feedback on why certain scores were assigned. Some students challenge their grades, and faculty members struggle to justify the AI's outputs*."

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Table 1. Case Study: Ethical Questions and Educator Guidelines for AI-Powered Student Assessment

Questions	*Is the AI model's grading process explainable to students and faculty?*	*Who is responsible if the AI system assigns incorrect or biased grades?*	*Are there safeguards in place to detect biases in the grading model, particularly concerning linguistic or cultural diversity?*
Focus Group Insights	• Students lack clarity on how grades are determined. • Educators struggle to explain AI-generated results. • Faculty and students need guidance on AI use.	• Teachers remain ultimately responsible. • AI can assist but not replace educators. • Human review is essential, especially in disputes. • Low-stakes, varied assessments help reduce over-reliance on AI.	• Few safeguards currently exist. • Risk of bias for multilingual and international students. • Models need more diverse training data. • Educators should be trained in bias awareness and detection tools.
Key Actions	✓ Use GenAI with clear, shared rubrics. ✓ Justify grades in line with learning outcomes. ✓ Inform students about how AI is used. ✓ Train staff to explain AI-generated results. ✓ Treat AI as a support tool, not a replacement.	✓ Always acknowledge AI - generated/supported grades generation. ✓ Make teacher responsibility clear. ✓ Allow students to appeal grades to a human reviewer. ✓ Use varied, low-stakes tasks to reduce reliance on AI. ✓ Regularly test the AI for fairness.	✓ Train AI on diverse, inclusive data. ✓ Monitor grading patterns for bias. ✓ Raise awareness of algorithmic bias in faculty training. ✓ Use bias detection tools during system development. ✓ Combine AI grading with human judgment in sensitive cases.

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Table 2. Case Study: Ethical Questions and Educator Guidelines for AI-Powered Student Assessment (continue)

Questions	*Are there mechanisms to check the AI model's grading accuracy and prevent errors?*	*Should students have the right to opt out of AI grading and request human evaluation?*	*What measures should be implemented to ensure AI grading systems are fair, transparent, and accountable?*
Focus Group Insights	• Use of evaluation sheets makes AI decisions more transparent. • Educators should review AI-selected criteria. • Regular accuracy checks and sample reviews are needed.	• General support for student choice. • Dual grading (AI + human) suggested with consent. • Equal options must be offered to ensure fairness. • Some concern over students' ability to choose wisely. • Choice may depend on assessment type.	• Ongoing human feedback is essential. • AI should improve through human review. • Greater oversight for high-stakes tasks. • No single grade should determine outcomes. • AI should assist, not replace, educators.
Key Actions	✓ Use rubrics that AI can fill and staff can review. ✓ Calibrate AI outputs regularly. ✓ Spot-check AI-graded work. ✓ Maintain human oversight throughout grading. ✓ Create processes for error reporting and correction.	✓ Offer informed choice where appropriate. ✓ Apply the same options to all students. ✓ Allow dual grading with consent. ✓ Explain pros and cons of each option. ✓ Enable human review of AI-assigned grades.	✓ Review AI performance regularly. ✓ Use co-grading with educator involvement. ✓ Apply stronger checks for high-stakes tasks. ✓ Keep AI grading within a balanced assessment system. ✓ Create feedback loops to improve AI performance.

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2.3.2. Case Study: AI-Generated Course Materials

This case study explores the ethical challenges arising from the use of GenAI tools in the development of course content in higher education. It examines how core principles such as educational integrity, transparency, accountability, autonomy, and sustainability shape faculty responsibilities and affect the quality and credibility of teaching and learning practices.

Figure 2: Image generated using ChatGPT (GPT-4o, OpenAI) from the prompt 'a university professor presenting AI-related content to a group of students in class, with charts and slides on AI risks and benefits.'

Scenario: "*A university allows faculty to use GenAI to create lecture slides, reading materials, and even entire textbooks. However, students notice that some AI-generated content contains factual errors, misattributions, and lacks proper citations. Some faculty members rely heavily on AI, reducing the originality of their teaching materials*."

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Table 3. Case Study: Key Ethical Questions and Educator Guidelines for AI-Generated Course Materials

Questions	*How does AI-generated content impact academic honesty and knowledge credibility? Should there be guidelines for verifying AI-generated teaching materials?*	*Are students informed when course materials are AI-generated? Should faculty be required to disclose AI involvement?*	*Who is responsible if AI-generated materials contain misinformation or biases? Should AI-generated content undergo peer review?*
Focus Group Insights	• Effort shifts from creation to quality checking. • AI outputs often need correction and editing. • Risk of errors and misattribution if unchecked. • Call for clear citation of AI-generated content. • Support for training and content verification.	• Students deserve transparency from faculty. • Disclosure of AI use builds trust. • Faculty should model honesty. • Strong agreement on setting a clear example.	• Final responsibility lies with the educator. • AI lacks ethical understanding - humans must ensure integrity. • Standards should match those for traditional materials. • Peer review of AI-generated content is recommended. • Technology should raise, not lower, quality.
Key Actions	✓ Check AI-generated content for accuracy. ✓ Cite AI tools and sources clearly. ✓ Train faculty to review and adapt AI output. ✓ Set guidelines for AI use in teaching materials. ✓ Ensure educators stay responsible for content.	✓ Inform students when AI is used in materials. ✓ Include statements on AI involvement. ✓ Promote transparency as academic practice. ✓ Align faculty conduct with student expectations. ✓ Develop disclosure guidelines	✓ Require faculty to review all AI-generated content. ✓ Apply the same quality standards as traditional materials. ✓ Encourage peer review before classroom use. ✓ Clarify educator accountability for all materials. ✓ Promote AI as a support tool, not a decision-maker.

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Table 4. Case Study: Key Ethical Questions and Educator Guidelines for AI-Generated Course Materials (continue)

Questions	*Do faculty members feel pressured to use AI-generated materials, or do they have full autonomy in deciding their teaching methods?*	*Given the environmental costs of AI model training, should AI-generated materials be preferred over traditional methods?*	*What institutional guidelines should be in place to ensure AI-generated educational materials maintain academic integrity and accuracy?*
Focus Group Insights	• Most educators are still exploring AI use voluntarily. • No pressure to adopt AI. • Teachers value autonomy in choosing tools. • Many lack skills or confidence to use AI effectively. • Concerns exist about data privacy and AI reliability. • Institutions should support how to critically use AI.	• Lack of transparency about AI's environmental impact. • Many feel uninformed to assess sustainability. • High energy use of GenAI acknowledged. • Balance needed between efficiency and environmental responsibility. • Call for broader digital sobriety in education.	• Risk of institutional data feeding external AI models. • Human oversight remains essential. • Institutions should offer training on ethical AI use. • Verification mechanisms are needed. • Students should be able to report content issues.
Key Actions	✓ Respect faculty autonomy in teaching methods. ✓ Avoid forcing AI into course design. ✓ Provide training and technical support. ✓ Raise awareness about data and content risks. ✓ Encourage experimentation with AI as a tool, not a requirement.	✓ Raise awareness of AI's environmental footprint. ✓ Promote responsible, need-based use of AI tools. ✓ Develop institutional guidelines for sustainable tech use. ✓ Encourage reuse of high-quality traditional materials. ✓ Support balanced digital practices across teaching.	✓ Provide training on ethical and accurate AI use. ✓ Implement quality checks for AI-generated content ✓ Create channels for students to report errors. ✓ Protect institutional data in AI systems. ✓ Establish clear policies for AI integration in teaching.

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3. The Engagement and the Responsibilities of Students

GenAI tools are also increasingly influencing how students engage with assignments and approach their academic responsibilities. These technologies can offer valuable support by enabling more personalized study methods, improving comprehension, and fostering skill development across disciplines. However, their use also introduces important concerns, including the ethical implications of AI-assisted work, the handling of personal data, and the risk of dependency on automated outputs. The following subsections considers both the opportunities GenAI creates for students and the critical issues they must navigate in order to use these tools responsibly.

3.1 Benefits for Students

From the student's perspective, there are clearly significant benefits to be gained from using these innovative tools, both in the learning process and in research activities (University of Edinburgh, 2024-a; King's College London, 2025-b).

More specifically, at the level of learning, GenAI tools enable the development of personalized educational frameworks tailored to a student's individual needs and based on the specific content they aim to master (University of Glasgow, n.d.-a; University of Bristol, 2023; University of Edinburgh, 2024-a). These tools can provide immediate, real-time feedback to support students in understanding complex material (École Polytechnique Fédérale de Lausanne, n.d.-b; University of Bristol, 2023). In problem-solving contexts, GenAI can suggest relevant video lectures and generate similar practice exercises to reinforce learning (École Polytechnique Fédérale de Lausanne, n.d.-b).

Moreover, when students encounter particularly complex topics, GenAI can, with appropriate attention and supervision, provide concise, comprehensible summaries and present them within the structure of an interactive discussion (University of Glasgow, n.d.-g; King's College London, n.d.-b; The University of Manchester, n.d.-a; University of Cambridge, n.d.-a; University of Bristol, 2023; University of Edinburgh, 2024-a; University of Warwick, 2024; King's College London, 2025-a). These summaries can be produced from various sources, including conference proceedings, video content, and recorded podcasts (King's College London, 2025-a).

In the area of programming, GenAI tools can assist by suggesting code completions and identifying errors that may hinder a student's progress (University of Edinburgh, 2024-a; King's College London, 2025-a). Alternatively, students can write their own code and compare their approach with AI-generated suggestions to improve accuracy and efficiency (University of Oxford, 2024). Additionally, for texts in unfamiliar languages, GenAI can support students by helping to translate primary materials from one language to another (University of Warwick, 2024).

In addition, this technology can support students in strengthening their language skills by helping them improve the clarity and quality of their own written texts (LMU Munich, n.d.-a; University College London, 2024), while also offering insight into areas that require correction (University of Oxford, 2024; KU Leuven,

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2025). This process enables students to enhance their expression (University of Glasgow, n.d.-g) and fosters the development of critical thinking skills (University of Bristol, n.d.-c; University of Glasgow, n.d.-c), as they begin to recognize how the quality and effectiveness of their academic work can be elevated (University of Glasgow, n.d.-a; LMU Munich, n.d.-a). These benefits are further reinforced through exposure to practical AI applications (University of Edinburgh, 2024-a; King's College London, 2025-b), as well as engagement with case studies and fictional scenarios designed for evaluative and reflective learning purposes (University of Glasgow, n.d.-c).

Finally, at the organizational level, GenAI can significantly support students by automating repetitive tasks, thereby allowing them to concentrate on more complex and creative aspects of their studies (LMU Munich, n.d.-a). It can assist in structuring and organizing their thoughts (University of Bristol, 2023; King's College London, 2025-a), encouraging experimentation with new ideas (University of Warwick, 2024; University of Edinburgh, 2024-a; University College London, 2024; King's College London, 2025-a). Additionally, GenAI can help students organize their notes in a coherent and review-friendly format (University of Edinburgh, 2024-a; University of Oxford, 2024), thereby potentially enhancing their engagement with the material and improving retention (An et al., 2025).

In any case, the use of AI tools can help students become familiar with the evolving technological landscape within their respective fields - a valuable advantage in itself (University of Zurich, 2024).

3.2 Risks for Students

Clearly, the use of GenAI by students should not occur without appropriate guidelines and oversight, as it raises a range of issues that require careful consideration.

Initially, the support that GenAI provides to students in developing their language skills should be used as a supplementary aid, and under no circumstances should it be adopted in its entirety (University of Helsinki, n.d.-b; University of Warwick, 2024). Numerous universities consider submitting AI-generated work as one’s own to be a form of plagiarism (Cambridge International, n.d.; University of Bristol, 2023; University College London, 2024; King's College London, 2025-a), a breach of academic regulations (KU Leuven, n.d.-d; University of Helsinki, 2024), and a violation of academic integrity (University of Warwick, n.d.; University of Bristol, n.d.-g). Using GenAI to gain an unfair academic advantage constitutes academic misconduct (University College London, n.d.-b; University of Glasgow, n.d.-h; University of Edinburgh, 2024-a; University of Edinburgh, 2024-b; University of Cambridge Blended Learning Service, 2025; King's College London, 2025-b) and may result in serious penalties (University of Bristol, n.d.-c; Cambridge International, n.d.; University of Glasgow, n.d.-i). In some cases, such actions can lead to disciplinary proceedings and the imposition of formal sanctions (University of Bristol, n.d.-f).

Therefore, it is essential that students carefully review institutional guidelines to understand what is and is not permitted in the use of GenAI (University of Bristol, n.d.-

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f; The University of Manchester, n.d.-b). They must be diligent in disclosing any use of GenAI to avoid potential accusations of academic dishonesty (University of Glasgow, n.d.-d), and ensure that the final text is reviewed for accuracy and coherence (LMU Munich, n.d.-a; University of Glasgow, n.d.-a; University of Edinburgh, 2024-b; King's College London, 2025-a). GenAI-generated content can often be superficial yet presented in a way that appears more convincing than it truly is (University of Glasgow, n.d.-j).

Moreover, if students do not apply critical thinking when engaging with text generated by GenAI tools, they risk uncritically adopting social, political, or cultural biases embedded in the output (University of Bristol, n.d.-h; University of Cambridge Blended Learning Service, 2025; King's College London, 2025-a). The information provided by these tools may be outdated, based on data that is months or even years old (University of Glasgow, n.d.-k; University of Edinburgh, 2024-a; University of Oxford, 2024), and cannot access academic materials behind paywalls, including resources from university libraries (University of Glasgow, n.d.-h). As a result, GenAI may generate outputs that are unfair, discriminatory (TUM, 2023), or steeped in stereotypes (University of Glasgow, n.d.-a; King's College London, 2025-a).

In addition, these tools can produce inaccurate or fabricated content, sometimes citing non-existent sources or including factual errors (University of Glasgow, n.d.-k; University of Bristol, n.d.-e; The University of Manchester, n.d.-b; University of Amsterdam, Teaching and Learning Centres, n.d.-a; University College London, 2024). The presence of hallucinated references is a well-documented issue (University of Glasgow, n.d.-h; University of Bristol, n.d.-h; King's College London, 2025-a). Students must also consider whether the use of GenAI has altered the original intention or meaning of their work, potentially compromising the authenticity of their academic output (University of Oxford, n.d.-b; University of Bristol, n.d.-e).

Furthermore, in cases where the use of GenAI is authorized, it must be accompanied by clear responsibilities - particularly regarding the protection of (confidential) data entered into the system (KU Leuven, n.d.-b). These tools should not be used to process sensitive or licensed information (University of Helsinki, n.d.-a; University of Bristol, n.d.-b; King's College London, 2025-a), as uploading such content may expose users and institutions to risks related to intellectual property, privacy, and data security (University of Oxford, n.d.-b). Students should never input confidential, private, or personal information - whether about themselves or others - into these tools (King's College London, 2025-a; EPFL, n.d.-a). This includes personal data, confidential business or research information, intellectual property, sensitive data, and copyrighted material (KU Leuven, n.d.).

Beyond that, GenAI-generated content may contain hidden vulnerabilities. For instance, in tasks involving software development or coding, the AI may produce results that appear correct but contain subtle errors upon close inspection (University of Edinburgh, 2024-a). Such inaccuracies can lead to security gaps or flawed outputs, emphasizing the need for human oversight and critical review. In some cases, AI systems may even "learn" from confidential research data entered as prompts and

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unintentionally incorporate it into outputs accessible to external users (KU Leuven, n.d.), raising serious concerns about privacy and information security (TUM, 2023).

Finally, continued reliance on GenAI may prevent students from acquiring the very skills that are intended as core learning outcomes (University of Bristol, n.d.-f). Overdependence on these tools can impede the development of essential academic competencies such as writing, problem-solving, and critical thinking (University of Glasgow, n.d.-i; University of Edinburgh, 2024-b). When students rely too heavily on AI-generated content, they risk failing to develop the ability to analyze information and produce original work independently (University of Glasgow, n.d.-c).

3.3 Case Study - AI Chatbots for Student Mental Health Support

The following case study highlights a key area where GenAI directly impacts students in higher education: mental health support. As universities introduce AI-powered chatbots to provide 24/7 assistance, students are called to navigate new ethical and emotional challenges themselves. These include understanding the limits of AI empathy, protecting their personal data, and recognizing when to seek human help. The scenario reflects broader tensions between digital convenience and human-centered care, underscoring the importance of student awareness, informed consent, and personal boundaries. Empowering students with the knowledge and tools to engage critically with AI support systems is essential to protecting their wellbeing, dignity, and autonomy.

Figure 3: Image generated using ChatGPT (GPT-4o, OpenAI) from the prompt 'a university staff member interacting with an AI chatbot on a laptop, with privacy concerns highlighted in the background.'

> **Scenario**: "*A university deploys a GenAI chatbot to provide academic support. It answers student queries, helps with writing tasks, and offers study recommendations. However, the chatbot collects student data to personalize responses, raising concerns about privacy and data governance*."

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Table 5. Key Ethical Questions and Student Guidelines for AI Chatbots in Mental Health Support

Questions	***Can AI replace human counselors in mental health support, or should it only be a supplementary tool?***	***How should universities handle sensitive data from students seeking mental health support? Should students be able to request data deletion?***	***Are students aware that they are interacting with AI rather than a human? Should universities disclose limitations of AI chatbots in mental health support?***
Focus Group Insights	• AI cannot replace human counselors. • Human help is vital in complex cases. • AI can support where services are limited. • Well-trained AI offers interim help. • Trust and empathy are essential.	• Students should be able to access and manage their data. • Informed consent is essential before data use. • Training AI on sensitive data is ethically risky. • Strong safeguards are needed for mental health data.	• Students must know they're talking to AI. • Non-disclosure risks trust and effectiveness. • AI is usually recognized, but clarity is key. • Bots should disclaim and refer to professionals.
Key Actions	✓ Know that AI is support - not a replacement for counselors. ✓ Use AI for basic help, not serious issues. ✓ Seek human help when facing complex or urgent concerns. ✓ Understand what the chatbot can and can't do. ✓ Share feedback if the AI response seems unhelpful or unsafe.	✓ Understand your rights to access and delete your data. ✓ Only share data with informed consent. ✓ Ask how your information is stored or used. ✓ Report concerns about data misuse. ✓ Learn your protections under privacy laws like GDPR.	✓ Look for clear notices that you're using an AI tool. ✓ Understand the chatbot's limits - no diagnoses. ✓ Seek human help when in crisis or doubt. ✓ Expect a disclaimer at the start of chats. ✓ Ask how your interaction is being handled and stored.

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Table 6. Key Ethical Questions and Student Guidelines for AI Chatbots in Mental Health Support (continue)

Questions	*Does the AI chatbot provide culturally sensitive and inclusive support for diverse student populations?*	*Who is responsible if the chatbot fails to provide appropriate support, leading to potential harm? Should AI chatbots in mental health services be regulated?*	*What ethical and technical standards should AI mental health chatbots meet to ensure their effectiveness and safety for students?*
Focus Group Insights	• Training on Western data may reduce cultural relevance. • LGBTQ+ inclusion varies by region. • Chatbot responses may miss cultural nuance. • Redirecting to human help is useful but limited.	• Unclear who is legally responsible for chatbot failures. • Uncertainty around existing national regulations. • Mental health context seen as high-risk and sensitive. • Need for clear accountability and oversight frameworks.	• AI seen as backup when human help is unavailable. • 24/7 access supports isolated or vulnerable students. • Trust and context shape ethical use. • Risk of harm from unregulated or flawed systems. • Emphasis on diverse cultural training. • Extra safeguards needed for vulnerable users.
Key Actions	✓ Be aware that chatbots may lack cultural sensitivity. ✓ Use human help when AI feels off. ✓ Report biased or unclear chatbot replies. ✓ Ask how the chatbot was trained. ✓ Push for tools that reflect student diversity.	✓ Ask who's responsible if chatbot support fails. ✓ Know when and how to reach human counselors. ✓ Understand chatbot limits before use. ✓ Report issues or concerns immediately. ✓ Push for clear safety and accountability rules.	✓ Use chatbots as support, not a full replacement for counselors. ✓ Be aware of chatbot limits and capabilities. ✓ Check if the tool was trained with diverse data. ✓ Stay alert for harmful or biased responses. ✓ Report concerns to ensure safer, fairer tools.

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4. The Role of Institutions for the Adoption of Ethical AI

The growing integration of GenAI into higher education is also reshaping the organizational landscape of universities. These technologies offer strategic opportunities to modernize institutional processes, support evidence-based decision-making, and promote innovation in academic governance. At the same time, they raise complex challenges related to data security, environmental sustainability, and educational equity. The following section examines the institutional implications of GenAI adoption, highlighting key benefits and potential risks at the organizational level.

4.1. Benefits for Higher Education Institutions

The integration of GenAI into university structures offers significant benefits at both the organizational and administrative levels. Firstly, it could enable the reconfiguration of internal processes, enhancing efficiency, speed, and accuracy in data and document management (TUM, 2023; University of Oxford, n.d.-a; University of Amsterdam, Teaching and Learning Centres, n.d.-a). By implementing automated workflows - such as those related to documentation or the support of educational services - universities can save time and resources (University of Bristol, n.d.-b; The University of Manchester, n.d.-a).

At the same time, GenAI tools can foster innovation in organizational strategy by enabling the design of actions and policies based on data analysis and predictive models, thereby allowing decision-making to adapt to the evolving needs of the academic environment (University of Amsterdam, n.d.; University of Copenhagen, 2024; KU Leuven, n.d.-d). Moreover, they support the continuous modernization of management practices through dedicated teams and strategic committees focused on AI, ensuring that relevant policies remain coherent and up to date (The University of Manchester, n.d.-b; University of Amsterdam, n.d.; University of Zurich, n.d.).

GenAI could also support universities' efforts to foster more equitable access to digital tools, when implemented through controlled and secure institutional platforms that advance goals of inclusion and transparency (University of Bristol, n.d.-i; KU Leuven Learning Lab, n.d.-a). When used with appropriate guidance, GenAI can support the educational mission of the institution by being integrated into practices that foster values such as responsibility, ethical use, and technological literacy across the academic community (University of Glasgow, n.d.-j; University College London, 2024; King's College London, 2025-a).

Additionally, the development of a unified and coherent GenAI integration framework is presented by universities as a means to coordinate the operations of various structures, enhance interoperability, and foster a culture of creative experimentation with cutting-edge technologies. This, in turn, is framed as strengthening institutional flexibility and adaptability (University of Bristol, n.d.-e; King's College London, n.d.-c).

Lastly, at a broader strategic level, some universities present the adoption of GenAI as enhancing their prestige and international competitiveness (LMU Munich,

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n.d.-a; University of Warwick, n.d.; University of Copenhagen, 2024). Through research and educational innovations, institutions position themselves as leaders in contemporary technological advancement, thereby strengthening their reputation and attracting collaborations, funding, and high-caliber talent (LMU Munich, n.d.-b; University of Copenhagen, 2024). GenAI is not merely a tool, but a strategic opportunity to rethink and redesign how university organizations operate and evolve.

4.2. Risks for Higher Education Institutions

On the other hand, the introduction of GenAI into higher education presents significant challenges to maintaining academic integrity and institutional transparency. GenAI tools can generate inaccurate or fabricated citations, underscoring the need for clear, well-communicated policies governing their use (University of Bristol, n.d.-f). Compounding this issue is the unreliability of AI detection software, which can produce both false positives and false negatives, making consistent oversight difficult (University of Bristol, n.d.-f; University of Amsterdam, Teaching and Learning Centres, n.d.-b). To safeguard the credibility of assessments and uphold institutional reputation, the development of uniform and interoperable frameworks, such as institution-wide policies on GenAI governance spanning governance, pedagogical, and operational dimensions (e.g., Chan, 2023), or cross-nationally adaptable frameworks like the UPDF-GAI (Li et al., 2025), is essential.

The absence of ongoing policy adaptation regarding the assessment and use of GenAI risks institutional inconsistency and regulatory fragmentation. While some variation across schools, modules, and assessment types is appropriate given their specific learning outcomes, guidelines must be regularly updated to prevent the emergence of unequal or ambiguous practices across different schools and programs (University of Bristol, n.d.-j; University of Glasgow, n.d.-l; University of Zurich, n.d.). Without common frameworks, students may encounter varying regulations for the same technological tool, undermining transparency and institutional coherence (University of Bristol, n.d.-j).

The use of GenAI tools may expose universities to risks related to privacy breaches and the loss of intellectual property (KU Leuven, n.d.-b; University of Oxford, n.d.-b; University of Glasgow, n.d.-k). Many commercial platforms store or reuse user data under opaque terms, raising serious concerns about compliance with the General Data Protection Regulation (GDPR) (KU Leuven, n.d.-c; University of Oxford, n.d.-b) and with relevant local regulations, such as the Spanish National Security Schema (ENS). Without secure internal infrastructure and certified tools, institutions risk inadvertently relinquishing sensitive data or intellectual property belonging to students, researchers, or the university itself.

Alongside this, the integration of GenAI into university operations contributes to a growing environmental footprint. AI systems require substantial computing power, leading to increased energy consumption and CO_2 emissions (University of Warwick, n.d.; TUM, 2023; The University of Manchester, n.d.-b). As a result, institutional planning must address digital sustainability by incorporating green

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technologies and practices to ensure that GenAI implementation aligns with the university's broader environmental goals (University of Bristol, n.d.-e; The University of Manchester, n.d.-b). However, since the sustainability challenge extends beyond individual universities, a coordinated national or European Union strategy is needed to provide shared infrastructure that is efficient from a sustainability perspective.

Furthermore, the widespread adoption of commercial versions of GenAI tools may exacerbate existing inequalities among students. Those who can afford premium features may gain an unfair academic advantage, thereby undermining the principle of equal opportunity (University of Edinburgh, 2024a; King's College London, n.d.-b; University of Bristol, n.d.-i). To counter this, institutions should incorporate equitable access to technology into a broader strategy focused on inclusion and social justice (University of Edinburgh, 2024a).

Finally, and crucially, overreliance on GenAI risks undermining the university's core mission as a generator of indipendent and critical knowledge. If GenAI systematically replaces creative and research processes, universities risk retreating from their role as spaces for cultivating reflection, inquiry, and innovation (King's College London, 2025-a; University College London, n.d.-a). The integration of such technologies must therefore be carfully designed to strengthen, rather than substitute, the fundamental values of academic life.

4.3. Case Studies

These case studies provide insight into the organizational implications of integrating GenAI into core university functions such as faculty recruitment, academic support, and student assessment. They reveal how AI systems, while promising efficiency and scalability, can also introduce new risks related to bias, equity, data privacy, and student mental health. For example, reliance on AI to evaluate academic candidates may unintentionally favor those from privileged academic backgrounds; the use of chatbots for student support raises questions about transparency and data handling; and AI proctoring tools may create environments of discomfort or mistrust among students. These scenarios suggest that AI adoption is not a purely technical issue - it intersects with institutional values, governance structures, and the lived experiences of students and staff. Administrators are thus encouraged to view AI not just as a tool, but as a transformative force that requires careful consideration of its broader ethical and cultural impacts.

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4.3.1. Case Study: AI in Faculty Hiring Decisions

Figure 4: Image generated using ChatGPT (GPT-4o, OpenAI) from the prompt 'a university hiring committee member reviewing CVs with the assistance of AI tools, alongside video interviews with candidates.

Scenario: "*A university uses AI to screen applicants for faculty positions. The system is designed to evaluate CVs, research output, and teaching experience. However, some applicants raise concerns that the AI might favor candidates with more citations, disadvantageous early-career researchers and those from underrepresented backgrounds.*"

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Table 7. Key Ethical Questions and Administrator Guidelines for AI Use in Faculty Hiring

Questions	***How can we ensure the AI system does not reinforce existing biases in academia (e.g., gender, race, institutional prestige)?***	***Does the AI prioritize diverse academic profiles, or does it narrow the candidate pool unfairly?***	***Who is responsible for identifying and mitigating bias in AI-driven hiring? Should AI decisions be reviewed by human committees?***
Focus Group Insights	• AI reflects bias in its training data. • Past hiring bias can repeat. • Clear criteria help reduce bias. • AI should support, not decide. • Humans must review results. • Ongoing audits are needed.	• AI relies on prompt and criteria quality. • Writing fair rules is hard. • One-size rules don't fit all. • AI may filter out diversity. • Diversity needs tailored setup.	• AI decisions must be human-reviewed. • HR alone shouldn't bear responsibility. • Universities need AI oversight boards. • Humans should flag bias in results. • Set clear protocols for bias handling. • Final decisions must be made by people.
Key Actions	✓ Train AI on diverse, bias-checked data. ✓ Define clear, fair scoring rules. ✓ Use AI for screening, not final picks. ✓ Audit and test AI regularly. ✓ Always review AI outputs manually. ✓ Follow fairness laws and ethics.	✓ Test prompts to reduce bias. ✓ Tailor inclusive criteria per context. ✓ Watch for exclusion in AI results. ✓ Include DEI (Diversity, Equity, and Inclusion) experts in design. ✓ Check if diversity goals are met.	✓ Set up AI governance committees. ✓ Review all AI suggestions with humans. ✓ Build bias detection protocols. ✓ Train staff to assess AI outputs. ✓ Ensure institutional accountability.

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Table 8. Key Ethical Questions and Administrator Guidelines for AI Use in Faculty Hiring (continue)

Questions	*Are candidates aware of how AI is being used in the selection process? Can they contest AI-based rejections?*	*What policies or safeguards should universities adopt to ensure AI hiring tools promote fairness and diversity?*
Focus Group Insights	• Candidates often don't know AI is used. • Decisions are hard to explain or contest. • AI systems lack clear interpretability. • Applicants may try to trick the system. • Clear criteria enable better transparency.	• AI must explain scores clearly. • Final calls should be human-made. • No strong audit systems in place. • Worries about unchecked AI control. • Transparency builds trust and fairness.
Key Actions	✓ Clearly disclose AI use in hiring. ✓ Share evaluation criteria with candidates. ✓ Allow appeals of AI decisions. ✓ Break down AI scores by criteria. ✓ Use explainable, documented AI systems.	✓ AI must explain how scores are calculated. ✓ Keep final hiring decisions human-led. ✓ Set up governance boards for AI oversight. ✓ Enforce fairness and diversity policies. ✓ Review tools regularly for equity alignment.

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4.3.2. Case Study: AI-Powered Tutoring and Student Support

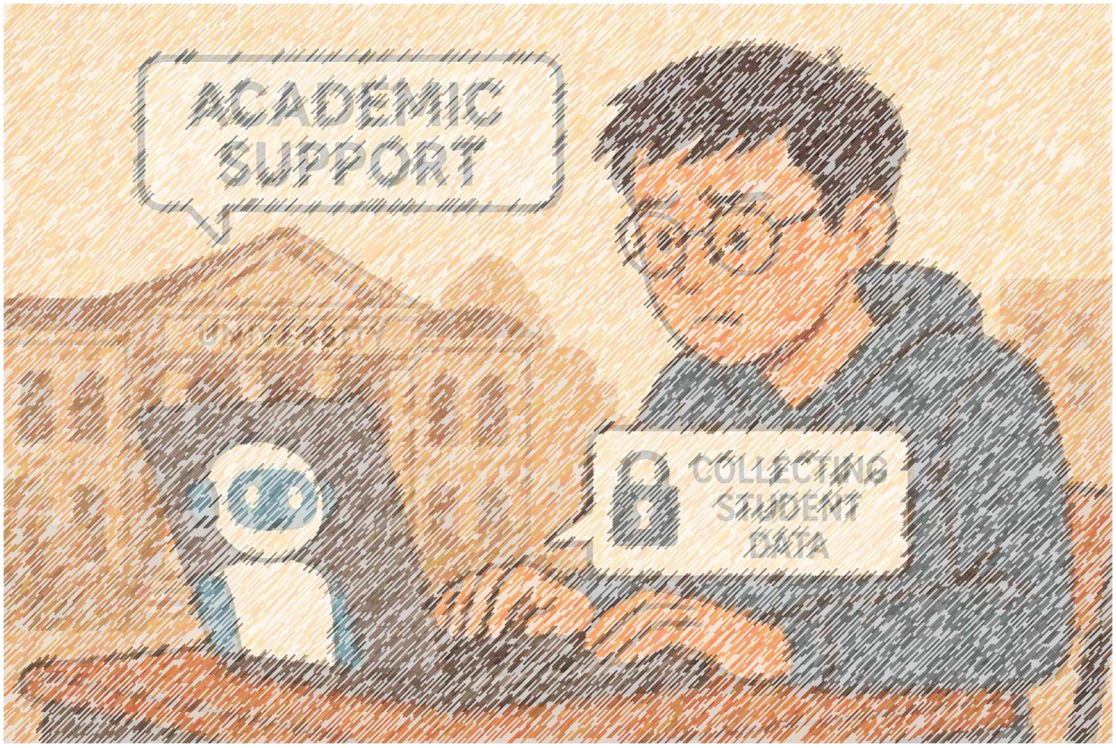

Figure 5: Image generated using ChatGPT (GPT-4o, OpenAI) from the prompt 'a student using an AI chatbot for academic support on a laptop, while issues of student data collection are highlighted in the background.'

Scenario: *"A university deploys a GenAI chatbot to provide academic support. It answers student queries, helps with writing tasks, and offers study recommendations. However, the chatbot collects student data to personalize responses, raising concerns about privacy and data governance."*

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Table 9. Key Ethical Questions and Administrator Guidelines for AI-Powered Tutoring and Student Support

Questions	*Does the AI tutor enhance student learning, or does it risk replacing critical thinking and engagement with human educators?*	*Is student data securely stored and anonymized? Who has access to the collected data?*
Focus Group Insights	• AI tutors can boost learning. • Useful in distance or low-interaction courses. • Offers 24/7 help and builds student confidence. • Can support critical thinking if used well. • Some students misuse it to avoid reading. • Impact depends on task and course design. • New students may struggle with prompts. • Acts like a smart search, not a teacher. • Doesn't replace human contact - can fill gaps.	• Limit data to course-level info. • Anonymize data before storing. • Students may overshare with AI. • Some teachers can see chats exchanged conversations • Open data may clash with privacy. • GDPR is key for data rules. • Some prefer bots without user data.
Key Actions	✓ Use AI to support, not replace, teaching. ✓ Train students on ethical AI use. ✓ Design tasks that AI can't easily solve. ✓ Help beginners use AI effectively. ✓ Keep teachers active in student learning. ✓ Watch for misuse or over-reliance. ✓ Set clear rules for AI in coursework. ✓ Review AI's impact on learning often.	✓ Collect only essential data. ✓ Avoid storing personal info unless needed. ✓ Anonymize data before use. ✓ Define who can see student chat's content. ✓ Inform the students if teachers can view chats. ✓ Comply with GDPR and privacy rules. ✓ Use bots that work without personal data. ✓ Audit AI tools for data and access risks.

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Table 10. Key Ethical Questions and Administrator Guidelines for AI-Powered Tutoring and Student Support (continue)

Questions	***Considering the high energy consumption of AI, is the chatbot a justifiable use of resources?***	***Are there barriers (e.g., language, disabilities, internet access) that may prevent some students from benefiting equally from the AI tutor?***	***How can universities ensure that AI-powered tutors support learning without compromising privacy, equity, and sustainability?***
Focus Group Insights	• The environmental impact of AI is a concern. • More data is needed to assess usage levels. • AI use may not be justified in every course. • Selective deployment could reduce waste. • Lack of clear energy-use analysis. • Need to balance learning benefits with cost.	• AI helps reduce language and disability barriers. • It supports users with speech or hearing challenges. • Multilingual tools improve access for diverse students. • Internet access remains the biggest barrier. • Growing connectivity may ease this gap over time.	• Limited access to paid AI tools creates inequality. • Wealthier students may gain academic advantages. • Local AI use should fit each course, not a one-size model. • Anonymizing student data protects privacy. • Avoiding data collection reduces personalization but increases safety.
Key Actions	✓ Evaluate energy costs of AI tools. ✓ Limit AI use to high-impact areas. ✓ Conduct environmental impact assessments. ✓ Develop sustainable AI deployment policies. ✓ Balance digital benefits with ecological goals.	✓ Ensure AI tools support multiple languages. ✓ Include accessibility features for all disabilities. ✓ Monitor digital equity and access issues. ✓ Offer offline or low-data options where possible. ✓ Regularly test AI usability with diverse users.	✓ Provide free institutional AI access for all students. ✓ Avoid one-size-fits-all AI policies - allow course-level decisions. ✓ Minimize data collection; use anonymized inputs where possible. ✓ Balance personalization with privacy and fairness. ✓ Track AI's impact on equity and adjust policies accordingly.

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4.3.3. Case Study: AI-Proctored Exams

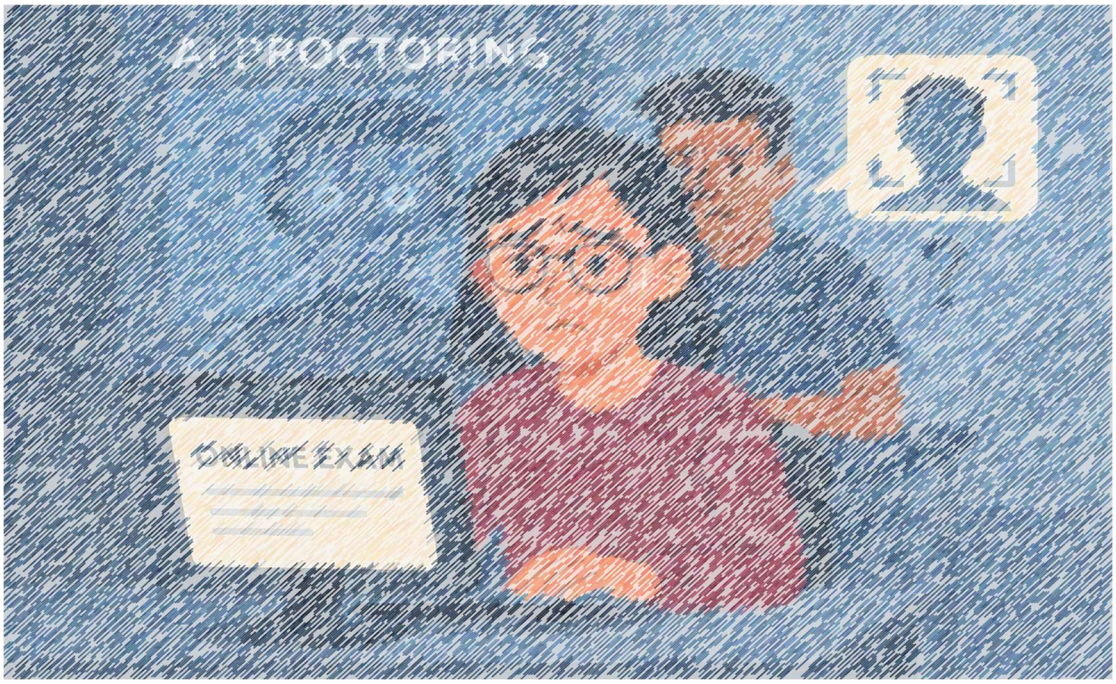

Figure 6: Image generated using ChatGPT (GPT-4o, OpenAI) from the prompt 'a student taking an online exam with AI proctoring, highlighting concerns about surveillance and privacy.'

Scenario: *"To prevent cheating, a university implements AI proctoring software that tracks students' eye movements, facial expressions, and typing behavior during online exams. Some students report feeling uncomfortable and anxious under AI surveillance. Others raise concerns about false accusations of cheating due to technical errors or biased facial recognition."*

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Table 11. Key Ethical Questions and Administrator Guidelines for AI-Proctored Exams

Questions	*What safeguards should be in place to ensure AI proctoring does not infringe on student privacy? Who has access to the recorded data?*	*Should students have the right to refuse AI proctoring without facing academic penalties? Should alternative assessment methods be offered?*
Focus Group Insights	• Some use live human proctoring, not AI. • Data should be stored only short-term. • Human review ensures fairness. • Some Italian universities ban AI proctoring. • In-person exams are seen as more credible. • AI surveillance raises consent concerns. • COVID-era tools (e.g., webcams) were easy to cheat.	• Some universities use human proctoring, not AI. • AI raises privacy concerns. • Data should be stored only briefly (e.g., for appeals). • Human oversight is key. • In-person exams often replace AI proctoring. • Alternatives exist for students with disabilities. • COVID-era tools avoided AI but had flaws. • Webcam-only setups were easy to cheat.
Key Actions	✓ Require human oversight in AI proctoring. ✓ Limit data storage to appeal periods. ✓ Set clear rules on data access. ✓ Inform students about monitoring and data use. ✓ Follow national laws (e.g., GDPR). ✓ Provide alternatives for students with disabilities. ✓ Audit proctoring systems regularly.	✓ Offer non-AI exam options. ✓ Let students opt out without penalty. ✓ Retain data only for appeals. ✓ Ensure human review of AI decisions. ✓ Set clear data access rules. ✓ Provide disability accommodations. ✓ Be transparent about AI use and appeals. ✓ Review legal policies regularly.

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Table 12. Key Ethical Questions and Administrator Guidelines for AI-Proctored Exams (continue)

Questions	*If an AI system flags a student for suspected cheating, what mechanisms should exist for appeal and human review?*	*Does AI proctoring contribute to student anxiety, and how should universities balance academic integrity with student welfare?*	*What ethical and technical guidelines should universities establish for AI proctoring systems to protect students' rights and well-being?*
Focus Group Insights	• Students must be clearly informed of any accusations. • Human review should be the default in all flagged cases. • Lecturers need access to records and a central role in decisions. • Clear, timely appeal procedures should be in place. • Most institutions lack formal review bodies - this needs attention.	• AI exams increase anxiety for many students. • Vague monitoring rules and low transparency raise stress. • Clear communication before exams helps reduce worry. • Knowing appeal rights reassures students. • Universities must balance integrity with student wellbeing.	• Human oversight is crucial. • Students need reassurance of human review. • Staff must handle AI errors or false flags. • Some find remote proctoring less stressful. • Clear info reduces fear of unfair AI judgment. • AI can't replace human judgment in complex cases.
Key Actions	✓ Require human review before any penalties. ✓ Notify students with reasons and allow access to evidence. ✓ Set up clear and timely appeal processes. ✓ Involve lecturers and relevant staff in decisions. ✓ Log AI decisions for transparency and review. ✓ Align processes with fairness and institutional policies.	✓ Inform students clearly about what AI monitors and why. ✓ Publish rules on behaviors that may trigger AI flags. ✓ Ensure students can challenge AI accusations. ✓ Offer alternatives for students with high anxiety. ✓ Involve mental health staff and collect ongoing feedback.	✓ Require human review before any AI-based decisions. ✓ Clearly explain how the AI works and what it monitors. ✓ Provide a clear contact point for errors or concerns. ✓ Train faculty to interpret and override AI judgments. ✓ Establish fair appeal processes and review student feedback.

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5. Limitations and future work

While this guide aims to offer a structured and literature-informed approach to evaluating the ethical use of GenAI in higher education, several limitations must be acknowledged regarding the methodology, scope, and applicability of its findings.

Firstly, the identification of potential benefits and risks, associated with GenAI usage, was primarily based on an analysis of publicly available information from the websites of the top 20 ranked European universities. Although this approach ensured a high-quality reference base, it inherently limited the breadth of perspectives and use cases captured. Important practices or concerns from smaller institutions, non-English speaking contexts, or rapidly evolving pilot initiatives may therefore not be fully represented.

Second, the practical tools included in the guide (such as factsheets) are limited in number and depth. As such, it is reasonable to acknowledge that they cannot fully capture the diversity of institutional challenges or offer immediate solutions to specific dilemmas (e.g., “we are facing this problem - how should we solve it?”). The six case studies analyzed, selected according to the project specifications and agreed research protocol, serve as a starting point for structured reflection, local adaptation, and the strengthening of ethical awareness around the use of GenAI. Furthermore, the value of these tools depends greatly on the specific institutional context and use case, underscoring the need for alignment with each institution’s values, principles, and mission (Fawns, 2022). Ideally, a future improvement could involve the inclusion of an appendix with additional scenarios based, for example, on practices observed in the universities studied, to enhance the guide’s usability for institutions seeking more targeted guidance.

Moreover, we must acknowledge an inherent trade-off in the design of this guide: the balance between analytical thoroughness and project feasibility. While more time and resources could have allowed for deeper cross-institutional comparisons, user testing, or expert validation, the goal here was to produce a usable and relevant output within a defined period. With additional time, we might have explored longitudinal studies of GenAI use, cross-disciplinary perspectives, or engaged more directly with student and faculty voices through more interviews or surveys.

Finally, perhaps the most significant challenge is the fast-moving nature of the GenAI landscape itself. The ethical, technical, and pedagogical implications of GenAI in education are evolving rapidly. New tools, regulations, and social norms are constantly emerging, meaning that any framework developed today may require substantial revision within a year. Therefore, this guide should be seen as a living document - a foundation to build upon as institutions and educators continue to engage critically and creatively with GenAI technologies. To ensure its ongoing relevance, future updates could be facilitated through mechanisms such as periodic stakeholder workshops, feedback loops with teaching staff and students, or an online platform for sharing emerging practices and policy revisions.

Acknowledgment

During the preparation of this Guide, the authors made use of the GenAI tool ChatGPT 4.0 (OpenAI) in the following supportive capacities:

- **Image creation**, based on author-provided descriptions, for inclusion in the main text.
- **Summarization and synthesis of information** regarding the benefits and risks of GenAI in higher education, specifically for students, academic staff, and administrative entities - based on sources previously identified by the research team.
- **Analysis of transcripts from focus group discussions**, and assistance in the **deconstruction and structuring of selected case studies**.
- **Enhancement of clarity, coherence, and consistency** in the writing of the guide.

The tool was used strictly as an assistive resource. All outputs were critically reviewed and edited by the authors, who take full responsibility for the accuracy, integrity, and quality of the final content.

Appendix

The following section presents the measurement indicators for the ethical dimensions of GenAI use in higher education, as recognized in the relevant literature.

1. Educational Impact and Integrity (8 measurement items)

- What is the purpose of using GenAI in your teaching or learning? What problems are you trying to solve? (Holmes et al., 2019; Holmes et al., 2022-a; Holmes et al., 2022-b)
- Does your use of GenAI support your pedagogical approach? (Holmes et al., 2022-a)
- Is there evidence that the GenAI system is supporting learning as intended? Can technology do what is expected of it? (Holmes et al., 2022-a)
- How is the effectiveness and impact of the AI system being evaluated and how does this evaluation consider the key values of education? Does the evaluation include the effect on the role of teachers, mental health, social interactions, etc.? (Directorate-General for Education, 2022; Holmes et al., 2022-a; Holmes et al., 2022-b)
- Is it a problem that GenAI is not trustworthy? Should students be able to check and evaluate the sources? (Holmes et al., 2022-a)
- Is GenAI used in a way that upholds the values of academic integrity such as honesty, trust, fairness, respect, and responsibility? Does this technology respect intellectual property, cite its sources and avoid plagiarism? (Holmes et al., 2022-a; Novelli et al., 2024)
- What role is foreseen for the teacher, the institution, and students when the AI system is used? (Holmes et al., 2019)
- What do we risk losing by using AI systems? (Holmes et al., 2019)

2. Privacy and Data Governance (2 measurement items)

- Does the suggested use of GenAI comply with the GDPR? (Directorate-General for Education, 2022)
- Is it possible to customize the privacy and data settings? ((Directorate-General for Education, 2022; European Commission, 2024)

3. Societal, Individual, and Environmental Wellbeing (2 measurement items)

- GenAI has a strong environmental impact and is expensive, does its use add to the learning experience something that could not be done otherwise? (Holmes et al., 2022-a)
- What negative effect may this use of GenAI have on society or the individual? Does the use of the GenAI system create any harm or fear for society or individuals? (Directorate-General for Education, 2022)

4. Teacher and Student Agency and Oversight (5 measurement items)

- Are teachers and students equipped with the necessary digital and AI literacy skills to make informed decisions? (Holmes et al., 2022-a; Holmes et al., 2022-b)
- Is the teacher free to decide whether to use GenAI technology or not in their module? Is there a mechanism for learners to opt-out without being at a disadvantage? (Directorate-General for Education, 2022; Holmes et al., 2022-a)

- Is GenAI technology manipulating or misleading students? (Holmes et al., 2022-a)
- Are procedures in place for teachers to monitor and intervene, for example in situations where empathy is required when dealing with learners? (Directorate-General for Education, 2022)
- Does the GenAI system empower learners and teachers?

5. Diversity, Non-discrimination, and Fairness (4 measurement items)

- Is this technology accessible to everyone in the same way, without barriers? E.g., governmental regulations, limited internet access, insufficient infrastructure, disabilities or special education needs (Directorate-General for Education, 2022).
- What biases are present in the training data? Including cultural biases, marginalized groups, language, etc. (Holmes et al., 2022-a; Holmes et al., 2022-b)
- Are we diminishing quality education for certain groups, are AIED systems biased against some groups, and are some other groups being ignored? What impact could the biases have on the learners? (Holmes et al., 2022-a; Holmes et al., 2022-b)
- Are procedures in place to detect and deal with biases or perceived inequalities that may arise? (Directorate-General for Education, 2022)

6. Accountability (3 measurement items)

- Is there a Service Level Agreement in place, clearly outlining the support and maintenance services, responsibilities, and steps to be taken to address reported problems? (Directorate-General for Education, 2022)
- Who is responsible if something goes wrong? (Holmes et al., 2022-a; Holmes et al., 2022-b)
- Is there an easy route for complaints or redress? (Holmes et al., 2019)

7 Transparency (3 measurement items)

- Is the dataset used for training known? Is the system's model visible and inspectable in a way that can be understood by teachers and students? (Holmes et al., 2022-b; Holmes and Miao, 2023)
- Was the AI system designed and implemented in such a way that it offers clear and certain justifications for every action it takes?
- If there is no or limited transparency in how this technology works, what implications does this have for teaching and learning? (Holmes et al., 2022-b; Holmes and Miao, 2023)

8. Technical Robustness and Safety (3 measurement items)

- Is there sufficient security in place to protect against and monitor data breaches and data poisoning? Is there a contingency plan in case of accident? (Directorate-General for Education, 2022)
- Are there regular checks to ensure the correct functioning of the system? (Directorate-General for Education, 2022)
- What happens if this technology is no longer available? (Holmes et al., 2022-a; Holmes et al., 2022-b)

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