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## Abstract

Generative artificial intelligence (Gen AI) is rapidly reshaping higher education by offering new opportunities for personalised learning, accessibility, and academic support. Drawing on UK Government guidance and policies from leading UK universities, this overview examines key applications of Gen AI alongside risks such as misinformation, bias, privacy concerns, and threats to academic integrity. It argues that responsible integration requires AI-resilient assessment design, including multi-level and developmental assessment testing, contextualised tasks, and process-based work that foregrounds human judgement. The paper also highlights the renewed role of invigilated pen-and-paper examinations and on-campus verification methods in safeguarding authenticity. Overall, universities must strike a balance between embracing AI's opportunities and protecting academic values, and policies must remain both clear and flexible in response to an ever-evolving AI environment.

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# Generative AI in Higher Education: Opportunities, Risks and Assessment Design

By C. Wilson (2025)

*This overview was created by analysing current guidance and evidence from the UK Government alongside policies and practice papers from leading UK universities: Glasgow, Leeds, Reading, Sussex, Manchester, Edinburgh, King's College London, Leicester, Liverpool and Newcastle.*

## **1. Introduction: What is Generative AI?**

Generative artificial intelligence (Gen AI) in education refers to tools such as ChatGPT, Google Gemini, Microsoft Copilot, Deep Seek, Grammarly and Midjourney that create new content including text, images, code, and simulations to enhance and personalise teaching and learning. These technologies can support automated feedback, lesson design, adaptive tutoring, and the creation of realistic scenarios. However, they also carry risks such as spreading misinformation, raising ethical concerns, and weakening critical engagement when used without careful evaluation (1-5).

**AI:** umbrella term for all forms of artificial intelligence.

**Generative AI:** a specific type of AI designed to produce new data, not just process or recognise it.

## **2. Applications of Generative AI in Education**

AI tools can enhance students' learning by offering personalised support, creative ideas, and instant feedback. The following examples show how AI can be used to develop understanding, improve productivity, and make studying more interactive and inclusive. (1,4,5).

- **Personalised learning:** Use AI tools to adapt study pace, review key topics, and focus on areas students find difficult.
- **Content exploration:** Generate study notes, quizzes, summaries, and multimedia explanations to support understanding.
- **Virtual tutoring:** Ask AI for one-to-one explanations, examples, or feedback when revising or preparing assignments.
- **Simulations and scenarios:** Practise real-world situations or case studies created by AI to apply theory to practice.
- **Assessment and feedback:** Use AI for self-checking, receiving formative feedback, or tracking your learning progress.
- **Accessibility:** Get complex texts simplified, translated, or converted to accessible formats such as alt text or audio.
- **Text manipulation:** Summarise readings, paraphrase key points, or reformat notes into tables or outlines.
- **Idea generation:** Brainstorm essay topics, argument structures, or report outlines to plan your writing.
- **Data analysis and visualisation:** Turn data into clear charts, graphs, or infographics for presentations or reports.
- **Productivity support:** Organise tasks, plan study schedules, and manage time more efficiently with AI assistance.

### **3. Limitations and Risks of Generative AI in Education**

Generative AI provides opportunities such as personalised learning and content creation, but it also poses risks including misinformation, bias, and privacy concerns, which require responsible and critical use (2-5).

- **Reliability and Accuracy**

AI often produces errors or misleading outputs because it cannot reliably distinguish truth from falsehood. In some cases, it fabricates information, known as hallucinations, including false references that appear credible but do not exist. Performance can also decline over time through a process called algorithmic drift. At present, this occurs when accuracy and reliability decrease because the system continually repeats and recycles the same information, reinforcing patterns and errors rather than adapting to new or changing data (4,5).

- **Bias and Fairness**

AI systems are trained on vast datasets that may include stereotypes, cultural biases, or discriminatory patterns, which are often reproduced and even amplified in their outputs. There is a lack of transparency in how these systems generate responses, often described as the black box problem, which limits accountability and a clear insight into decision-making processes. Generally, AI presents information in a confident and authoritative manner, which can encourage users to accept flawed or misleading content without applying sufficient critical evaluation (2,4).

- **Academic Integrity**

By producing work with AI that does not reflect their own understanding, students risk committing plagiarism or academic dishonesty and graduating without genuine expertise or professional competence. In fact, such excessive reliance contradicts university pedagogical principles, as it weakens critical thinking, problem-solving, and independent learning skills (6,7).

- **Data Privacy and Compliance**

AI systems often process sensitive personal or research data, raising risks of breaches, surveillance, or misuse. Involving third party vendors, which are external organisations that store, manage, or analyse data on behalf of an institution, introduces additional risks of interception, unauthorised access, or exposure outside the institution's direct control. Many AI systems are trained on copyrighted material without permission, which raises questions about intellectual property, unclear ownership of outputs, and potential legal disputes. Furthermore, accessibility and equality requirements must be addressed to ensure full compliance with **General Data Protection Regulation (GDPR)** and **Data Protection Act (DPA)** obligations (3,5).

- **Ethical and Social Concerns**

AI outputs may conflict with institutional values or misalign with ethical standards. In particular, overuse of AI, where automated systems are relied upon more than human judgment, can restrict academic freedom and discourage independent perspectives. This dependence may also reduce creativity and undermine professional expertise by replacing original thought and specialist knowledge with formulaic outputs. Staff–student relationships may also decline if AI is seen as replacing human roles, reducing trust, mentorship, and personal interaction. As a result, students may feel less supported or valued, while staff may experience a loss of professional identity and authority, ultimately weakening the sense of academic community (3,8).

- **Business and Reputational Risk**

Failure to implement responsible AI innovation may compromise a university's reputation and diminish its competitive position, while inadequate governance or misuse can erode institutional trust and credibility. Universities that adopt inconsistent or poorly defined AI policies risk exposure to privacy breaches, intellectual property disputes, and heightened public scrutiny (9).

#### **4. Designing AI Resilient Assessments**

Assessments most vulnerable to AI are formulaic, decontextualised, and focused on reproducing surface level knowledge. These are precisely the tasks that AI is designed to perform. The aim is not to create assessments that AI cannot complete, since this threshold continually shifts, but to emphasise human judgement, lived experience, contextual nuance, ethical reasoning, and creativity (10,11,12).

##### **Assessment Design Techniques**

AI resilient assessment design combines selective invigilation, live components, contextualised and process-based tasks, collaboration, ethical judgment, experiential learning, and guided AI use to promote integrity, critical thinking, and authentic engagement (6–8).

##### **4.1 Invigilated and On-Campus Components**

- Incorporate supervised or invigilated elements such as in-person exams, vivas, or practical demonstrations to confirm authorship and understanding.
- Use the On-Campus Sign-Off Method or short oral defences to verify student ownership of submitted work.

##### **4.2 Contextual and Localised Assessment Tasks**

- Design assignments that draw on module-specific readings, seminars, or case studies.
- Require reference to local data, examples, or institutional contexts that AI systems are less able to replicate accurately.

##### **4.3 Interlinked and Developmental Assessment**

- Create portfolios or linked assessments across a module or programme to assess coherence and sustained learning.
- Ask students to provide annotated drafts, research notes, or reflective commentaries that demonstrate process and progression.

##### **4.4 Higher-Order Thinking and Critical Engagement**

- Emphasise skills such as analysis, synthesis, and evaluation in both task design and marking rubrics.
- Use criteria that reward original argumentation, integration of theory, and engagement with course materials, reducing the grade potential of generic AI outputs.

##### **4.5 Authentic and Scenario-Based Tasks**

- Frame assignments around realistic case studies, simulations, or applied problems that include specific constraints (defined time limits, limited data sets, local examples, or scenario-based conditions).
- Ask students to adapt content for different audiences or purposes to demonstrate audience awareness and critical reflection.
- Include opportunities for personal insight or experience, connected to academic evidence and theoretical frameworks.

##### **4.6 Incorporation of AI within Assessment**

- Allow or require guided AI use under a traffic light system of “Amber” or “Green” conditions, where students critically evaluate AI outputs or demonstrate effective prompting.
- Tasks may include comparing AI and human writing, improving AI-generated drafts, or reflecting on the ethical implications of AI use.

## 5. Programme-Level and Institutional Approaches

- **Embed AI resilience** across entire programmes through a balanced mix of supervised, process-based, and long-form assessments.
- **Review assessment structures** regularly with educational developers to ensure alignment with emerging AI capabilities and institutional policies.
- **Provide staff development** through workshops and communities of practice on authentic assessment design and AI literacy.
- **Engage students** in discussions and learning activities that clarify acceptable AI use, fostering transparency and shared responsibility for academic integrity.

Module-Level Assessment Approaches & AI-Resilience (6)		
Format	How it Works	AI-Resilience Benefit
<b>Nested Tasks</b>	Sequential activities build into one summative grade, with feedback at each stage.	Tracks student progress; harder to outsource as development is visible.
<b>Processfolio</b>	Collection of artefacts documenting one assignment's development with commentary.	Requires justification of learning process; reveals engagement and critical reflection.
<b>Multimedia/Hybrid</b>	Assignments in authentic formats (blogs, vlogs, podcasts, posters, short films).	Motivating, employability-focused; less likely to be outsourced to AI.
<b>Oral Assessments</b>	Live tasks such as debates, pitches, proposals, simulations, or vivas.	Tests creativity, evaluation, and use of own data; difficult for AI-prepared answers.
<b>Concept Maps/Visuals</b>	Graphic representations of knowledge or research (e.g. concept maps, abstracts).	AI can struggle with authentic visuals; externalises understanding of internal learning.

## 6. Pen & Paper Tests

Some universities are turning back to using handwritten, invigilated assessments to ensure authenticity and prevent student reliance on AI. For example:

*The University of Liverpool emphasises that assessments must “never replace original thought, independent research, and the production of original work,” recommending traditional, invigilated, handwritten formats as part of a wider strategy to safeguard authenticity and uphold academic integrity (14).*

*Newcastle University recommends using assessment formats that “are less vulnerable to AI misuse, such as **invigilated, in-person pen and paper exams**, to preserve academic integrity in a world where generative AI is widely accessible” (15).*

### Types of Pen and Paper Tests (16)

Test Type	What it assesses	Why it resists AI
<b>Closed-book exam</b>	Recall of knowledge, understanding of core concepts	No access to devices; relies on memory and preparation.
<b>Open-book exam (on paper)</b>	Application of knowledge using permitted notes	Still handwritten; AI tools are inaccessible in the exam room.
<b>Short-answer test</b>	Definitions, key terms, quick factual recall	Time-limited, handwritten; students must rely on their own knowledge.
<b>Essay questions</b>	Critical thinking, argument building, synthesis	Handwritten under invigilation; cannot copy from AI.
<b>Problem-solving tasks</b>	Application of formulas, calculations, logical reasoning	Requires step-by-step working out by hand.
<b>Data analysis</b>	Interpreting charts, graphs, or tables	Visual data interpretation, not easily outsourced to AI in exam conditions.
<b>Critical commentary</b>	Evaluation of a short text, image, or extract	Students must analyse unfamiliar material independently.
<b>Translation test</b>	Language skills, vocabulary, grammar accuracy	Handwritten; no access to online translation or AI tools.
<b>Diagram labelling/drawing</b>	Visual knowledge, spatial understanding	Requires manual recall of terminology and drawing ability.

## 7. The Gen AI Traffic Light System

The Gen AI Traffic Light System sets clear policy on academic integrity by defining when AI use is prohibited (**red**), allowed in an assistive role (**amber**), or required as part of the assessment (**green**). It ensures students use AI responsibly, supporting learning without undermining originality, fairness, or academic standards (6,9,12).

Category	Use of AI	Examples
<b>RED: Not permitted</b>	AI tools cannot be used for generating or editing content. Only spelling/grammar checkers allowed.	<i>In-person exams, class/online tests / writings, vivas, labs, practicals, discussion-based assessments.</i>
<b>AMBER: Assistive role</b>	AI may be used with tutor guidance to support but not replace learning.	<i>Drafting outlines, generating ideas, debugging code, translating text, providing explanations.</i>
<b>GREEN: Integral role</b>	AI is required and assessed as part of the task. Students must use AI critically and responsibly.	<i>Generating and comparing content, summarising, analysing, reframing, producing code, creating artwork (images/audio/video).</i>

## 8. Microsoft Copilot: A Safer and Smarter AI Tool for Students

Microsoft Copilot, integrated within the university's Microsoft 365 suite, provides students with a secure, institutionally supported AI assistant that enhances productivity while protecting data privacy and academic integrity (5,7,9). It provides:

- **Data security and privacy:** When accessed through a university Microsoft 365 licence, Copilot complies with GDPR and UK data protection standards, meaning student work and personal data are not harvested to train external AI models.
- **Integration with learning tools:** Copilot works directly within Word, PowerPoint, Excel, Teams, and Outlook, streamlining study tasks like summarising lecture notes, generating revision questions, or creating presentation drafts.
- **Equity of access:** Universities that provide Copilot give all students the same secure toolset, reducing unfair advantages that come with subscription-based commercial AIs.
- **Academic integrity support:** Copilot can be positioned as an assistive tool (grammar, structure, summarising) rather than a content generator, aligning with institutional traffic-light policies (**amber use**).
- **Efficiency and productivity:** It helps students manage workload by automating admin tasks (e.g. formatting references, cleaning transcripts, organising notes) so they can focus on higher-order thinking and original analysis.

## 9. Dos and Don'ts Infographic of Using AI for Students at Universities

**Dos**

- Check permitted use:**  
Always review your course or programme's AI policy.
- Use AI to support, not replace, thinking:**  
Do your own critical analysis and rewriting.
- Be transparent about your usage:**  
Disclose which tools you used and how.
- Verify facts and citations:**  
Always fact-check AI-generated content against reliable sources.
- Watch for bias and fairness:**  
Critically review outputs for stereotyping or unfair assumptions.
- Respect privacy and data protection:**  
Do not input sensitive or confidential data.

**Don'ts**

- Present AI work as your own:**  
Undisclosed AI use is misconduct.
- Rely completely on AI:**  
Avoid relying on AI to write entire assignments or large sections.
- Trust AI indiscriminately:**  
AI may hallucinate, misquote, or produce false information.
- Submit AI content without editing:**  
AI often lacks complete understanding, context, or critical reasoning.
- Use unapproved tools:**  
Avoid AI systems not vetted or approved by your institution.
- Ignore course rules:**  
A tool permitted in one class may be forbidden in another.

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## 10. Referencing

Citing AI in assignments ensures transparency and academic integrity by showing how and when these tools contributed to your work. It also allows tutors to evaluate your independent learning while recognising the role of AI in supporting, but not replacing, your academic skills (5).

Gen AI is evolving rapidly and there is not yet consensus on how to acknowledge and reference it. The minimum requirement to include in acknowledgement is:

- Name and version - Copilot
- Publisher - Microsoft
- URL - <https://m365.cloud.microsoft/chat>

### In-text Citation (Harvard Style)

Use the organisation name and year:

*(Microsoft, 2025)*

**Reference list:** *Microsoft (2025) Copilot (GPT-4) [Large language model], accessed 28 September 2025.*

*Available at:* <https://copilot.microsoft.com>

**Image:** *The visual representation of digital transformation was generated using Microsoft Copilot (Microsoft, 2025).*

### Example acknowledgement:

*I acknowledge the use of Microsoft (2025) Copilot (GPT-4) (<https://copilot.microsoft.com>) to generate draft ideas and provide feedback on grammar and style*

## 11. English Language Courses

**So, where does this leave English language courses?** Ultimately, the decision rests on the pedagogical principles underpinning the course. What are the intended learning outcomes? For instance, if the goal is to raise a student's IELTS score from 5.5 to 6.5, the emphasis may need to fall on the mechanical aspects of language development to a certain extent. This raises a series of pressing questions given that EAP is heavily skills-based, so, to what extent should students be permitted to use AI, and how can tutors regulate this? The challenges are significant, and policies must remain both clear and flexible in response to an ever-evolving AI environment.

Specific questions highlight the complexity: Is it acceptable to use AI for translating academic texts, generating outlines, or employing paraphrasing and referencing tools? To what degree should students rely on assistive AI such as Grammarly or MS Word's built-in checkers? Additionally, to what extent may they 'polish' their work before it compromises authorship? Even more challenging, how can tutors reliably determine what proportion of the work is genuinely the student's own, especially when AI can now be trained to reproduce the linguistic errors of a B2-level learner.

### Possible solutions include:

- **Reintroduction of Traditional Methods:** Reinstate pen-and-paper classroom activities such as defining terminology, paraphrasing, summarising, note-taking, and vocabulary development. These practices not only reinforce core linguistic skills but also enable the creation of a Tutor Portfolio, wherein handwritten work can serve as verifiable evidence in cases of suspected AI-related academic misconduct.
- **Defining Acceptable AI Use:** Establish clear parameters for the permissible use of generative AI within language learning contexts. For example, AI tools may be utilised for surface-level correction; such as grammar, vocabulary, and punctuation but must not be employed for generating original content or completing substantive academic tasks.
- **Assessing Student Comprehension:** Integrate assessment methods that directly evaluate a student's understanding of subject matter through oral formats, including vivas, oral defences, and structured in-person verification procedures such as the On-Campus Sign-Off Method: It typically involves students drafting, editing, or finalising their assignments under supervised conditions.
- **Institutional AI Policy Framework:** Develop and implement a comprehensive AI policy at institutional level, incorporating an "AI Traffic Light" system that clearly delineates acceptable and prohibited uses. All students should be required to sign an AI usage declaration at the beginning of their course to ensure informed compliance.
- **Data Protection and Privacy Compliance:** Promote awareness of data security and ensure full adherence to GDPR and UK data protection regulations. Student work, instructional materials, and personal data must not be uploaded to AI platforms without explicit consent and appropriate safeguards.
- **AI Literacy and Risk Awareness:** Embed AI training modules within the curriculum to educate students on the limitations, ethical considerations, and potential risks associated with over-reliance on AI technologies. These sessions should provide practical strategies for mitigating misuse and fostering responsible engagement.

## **11. Conclusion**

Generative AI is reshaping higher education by introducing new possibilities for personalising learning, streamlining teaching, and supporting accessibility, while simultaneously creating fresh challenges around accuracy, ethics, and academic integrity. The analysis of UK Government guidance and policies from leading universities demonstrates that responsible integration requires more than simply regulating tool use; it demands a shift in assessment design, with greater emphasis on human judgement, lived experience, and critical engagement. Frameworks such as the AI Traffic Light System provide clarity on when and how AI may be used, while the adoption of secure tools like Microsoft Copilot highlights how institutions can support innovation without compromising data privacy or fairness. Moving forward, universities must strike a balance between embracing AI's opportunities and protecting the values that underpin academic study.

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## Student Checklist for AI Use

### Before Using AI

- I have reviewed the **assessment brief** and **tutor's instructions** to determine the permitted extent of AI usage.
- I understand AI's **limits** (it can make errors, create bias, or fabricate information).
- I will **use AI as a support tool**, not as a replacement for my own work.

### While Using AI

- I keep my **data safe**: no personal details or sensitive course materials are uploaded.
- I **think critically**: I fact-check and cross-check all AI outputs with reliable sources.
- I **cite properly**: any AI-generated text, images, or code used in my work is acknowledged and referenced.
- I **build on AI suggestions** with my own analysis, ideas, and creativity.

### In My Assignments

- I ensure my work reflects **my own understanding and skills**.
- I do not use AI to **write or translate full assignments** (unless explicitly permitted).
- I use AI tools like Grammarly only for **style, clarity, or vocabulary improvement**, not for content creation.
- If I use AI visuals (e.g. diagrams, images), I provide **clear citations**.

### In Learning and Research

- I may use AI to **summarise, organise, or clarify concepts**, but I remain responsible for accuracy.
- I do not upload **lectures, readings, or slides** into AI systems (to protect copyright).
- I follow **ethical standards** when using AI in research (privacy, consent, data protection).
- In class discussions, I only use AI if my instructor has approved it.

### Staying Safe and Responsible

- I use **university-supported AI platforms** (e.g., Microsoft Copilot, Claude for Education) for secure and fair access.
- I protect my **academic integrity**: my submissions are genuinely my own work.
- If I am unsure, I **ask my tutor or supervisor for guidance**