Using LLMs in higher education teaching & learning

Opportunities and risks for staff, students & the university

Prof. Ken Spours, College of Education, Capital Normal University
& UCL Institute of Education

Introduction

UCL
IOE – FACULTY OF
EDUCATION AND SOCIETY

Session 5 Objectives

- Harness **existing practices and perspectives** of participants in using LLMs in teaching and learning.
- Discuss the **teacher use/student LLM use** distinction.
- Introduce the uses of LLMs in **phases** of curriculum design, teaching, learning and assessment.
- Discuss the **opportunities/risks of students** using LLMs in their studies.
- Create **Methodological Annex Template** for student reflection and transparency.
- Review teacher and student **Collaborative Critical Praxis** (CCP).

Using LLMs in higher education teaching and learning

CAPITAL NORMAL UNIVERSITY CNU 1954

UCL IOE – FACULTY OF EDUCATION AND SOCIETY

The case for using LLMs in HE teaching & learning

LLMs in teaching and learning	Opportunities	Risks
a. Efficiency & scale	**Rapid resource generation** - of varied, customized teaching materials at scale (e.g., quizzes, case studies).	**Quality assurance burden** - requires critical audit of outputs to check for hallucination and ideological drift.
b. Differentiated learning	Rapid resource generation can produce **differentiated tasks and assessments.**	Quality assurance burden (as above).
c. Skill development	**Cultivating the fusion intellect -** LLMs as cognitive partner & development of high-level skills of LLM-related criticality.	**Student and staff deskilling** - cognitive offloading and atrophy as teachers & students delegate complex intellectual labour to the MI.
d. Curriculum modernisation	**Workplace relevance** - prepares students for the distributed cognition models now featuring in research and industry.	**Assessment shift -** traditional model of assessment fails, forcing a shift to other assessment criteria.

LLMs provide **opportunities** for improving efficiency (e.g. technical tasks) allowing time to think about curriculum, pedagogy & assessment.
The **challenge** – identify and manage inherent risks**.**

A. Curriculum Design

1. Assisting levels of curriculum design and compliance

The LLM can process and relate various semantically linked data sets in curriculum design:

- specified course outcomes
- module specifications
- external regulatory/professional benchmarks.

2. Facilitating pedagogical shifts

Supports new pedagogical strategies (e.g. flipped classroom) by generating materials for in-class and out-of-class uses.

3. Scenario & case study creation

Generates complex, scenarios for application-based learning to foster deeper critical thinking and applied judgment.

Question to build the larger picture

How have participants used LLMs in curriculum design?

B. Material Generation & Support

1. Differentiated learning

LLMs can produce multiple explanations tailored to different comprehension levels thus promoting inclusion and personalized learning.

2. Generating question banks

Rapid creation of test questions, multiple-choice questions & discussion, tailored to different levels.

3. Summarization and simplification

Providing automated summaries of long lectures, research papers, or simplifying dense text.

Question to build the larger picture

How have participants used LLMs in material generation?

C. Assessment & feedback

1. Drafting and refining assessment rubrics

Using LLMs to draft or refine assessment rubrics based on specific assignment criteria.

2. Augmenting Human Feedback

- LLMs rapidly draft grammatically correct, focused feedback, which is then refined by the teacher.
- Grammar, style, and structure critique – LLMs excel at identifying and correcting surface-level issues (e.g., syntax, tone, coherence, adherence to style guides like APA or Harvard).

3. Detection of self-generated plagiarism

- By analysing student outputs, the LLM can assist in flagging work that appears algorithmically fluent but conceptually hollow, prompting the teacher to investigate the student's process.

Participant question to build the larger picture

How have participants used LLMs in assessment and feedback?

Using LLMs in higher education for student learning

CAPITAL NORMAL UNIVERSITY CNU 1954

UCL IOE – FACULTY OF EDUCATION AND SOCIETY

LLMs in university student learning

Opportunities

Learning support and augmentation of production - aid in comprehension, idea generation and practice (but not to replace core learning tasks)

Academic/study support - brainstorming ideas, structuring outlines, summarizing complex readings, refining grammar/style, translating texts and generating code/text.

Master critical thinking, disciplinary knowledge, and expressive skills - focus is on the learning process.

Risk management

Academic integrity - unauthorized use for summative assessment (plagiarism/cheating).

Cognitive offloading - and hindering the student's development of essential cognitive skills.

Highly restricted in summative assessment - unauthorized submission of LLM-generated content defined as academic misconduct.

Required to declare, cite, and reflect on the use in assignments to uphold academic integrity.

What should policy & practice be with students?

- **Banning use of LLMs** in student university work?
- Students are required to **declare, cite & reference** any use of an LLM in their assessed work and even non-assessed work.
- Develop **Methodological Annexes** to support transparency and attribution.
- Question - **a defensive or developmental strategy?**

Methodological Annex – developing CCP in students

1. What were your **core aims in this assignment** and how did you intend to use the Machine?
2. **Which LLM (platform & version)** did you use and why did you choose this model?
3. What specifically did you **ask the Machine to do?** Distinguishing permissible assistive tasks (e.g. proofreading) from prohibited replacement tasks (e.g. core analysis).
4. Provide examples of **question prompts, context prompts and dispositional prompts** you used.
5. What did you explicitly **choose NOT to ask the machine to do** and why?
6. **How did you respond to Machine feedback** and what did you do to correct/revise these? Provide a specific example (e.g. screenshot of the raw output or a tracked-changes document segment) of an LLM output and explain the corrections you applied
7. What **academic skills** did you deploy/develop and how did they **develop during** this whole scenario? Provide a key example.
8. What are your key reflections on this interaction between **your Mind and the Machine** - what did you achieve together?

The use of LLMs requires a continuous audit during the HI-MI interaction

Final reflections

Collaborative responsible critical pedagogy

Humans must always lead - LLMs should be used to draft or present options, but never to make final decisions on educational outcomes.

Human-Machine division of labour - deciding what the Machine and the Teacher do best to develop a dialogical relationship with the Machine – process of co-construction.

Design prompts as pedagogy - educators must move beyond simple prompts to provide contextual and dispositional prompts (asking LLM to take on a particular role) and integrate guardrails that require students to justify or critique the AI's output.

Invest in ethical and technical staff development - universities must prioritise professional development on AI capabilities, limits, data privacy, and bias to ensure widespread, informed adoption (hence CNU Development Programme).

Work with students as partners – involve students into the process of designing and piloting LLM use to ensure its effectiveness and model ethical engagement.

Focus on equity - proactive measures must be taken to ensure AI tools do not exacerbate existing educational disparities or widen attainment gaps.

Key questions

1. What should be our overall perspective regarding student use of LLMs? Defensive, developmental or both?
2. What are the key defensive actions for upholding academic integrity?
3. What should be the key developmental priorities for staff and students?

Resources

Beale, R. 2025. The Revolution Has Arrived: What the Current State of Large Language Models in Education Implies for the Future – https://pure-oai.bham.ac.uk/ws/portalfiles/portal/279998894/2507.02180v1.pdf

Williams, A. 2025. Integrating Artificial Intelligence Into Higher Education Assessment *Intersection: A Journal at the Intersection of Assessment and Learning* 6 (1),– https://www.researchgate.net/publication/389643995_Integrating_Artificial_Intelligence_Into_Higher_Education_Assessment

Preparation for Session 6