

unesco

International Institute for Higher Education in Latin America and the Caribbean

From Chalkboards to Chatbots: Artificial Intelligence in Higher Education



About IESALC



01

Promote the universal right to higher education

02

Empower institutions and higher education systems to be more responsive, inclusive, relevant and efficient

03

Nurture innovation in higher education

04

Re-envision internationalization





What is Artificial Intelligence?

0

What is Artificial Intelligence?

Not one universally accepted definition of AI

UNESCO's approach to AI focuses on the

imitation of human intelligence:

"machines capable of imitating certain functionalities of human intelligence, including such features as perception, learning, reasoning, problem-solving, language interaction, and even producing creative work"

Flexible interpretation to incorporate new developments







Comparing predictive and generative AI

Predictive Al

Uses statistical algorithms to analyse past data and predict outcomes for new data



In higher education it can be applied:

- In areas such as personalized learning platforms
- In student enrolment management
- In retention strategies
- In student advising support

Generative AI

Uses advanced deep learning methods to generate new content similar to that which could be generated by a human being

In higher education it can be applied:

- In general in the teaching / learning process
- Generating didactic content
- Translation of texts





What's driving recent interest in AI?

Research

- Half a million publications on AI in 2021
- 30x growth in number of patents
 2015-2021

Algorithmic advances

- There is no Al without algorithms
- [|||||||**|**||

•

Exponential increases in computing power and data storage

Investment

- Private sector funding increased 30x 2011-2021
- Business investment dominates R&D
- Governments are increasing their investment in AI research:
 - Singapore US\$150 million
 - UK US\$355 million 2017-2018
 - European Union doubled its funding between 2018 and 2019
- By 2030, potential contribution of Al to global economy is US15.7 trillion





Al in learning, teaching and assessment

Personalized learning: An overview







Personalized learning: Adapt assessments

Adapt assessments

Identify patterns such as why a student is not progressing, whether it might be linked to a lack of time commitment, motivation or timing and insufficient repetition Learners create or co-create personalized learning environments, which may increase student motivation and self-regulation skills and could nurture lifelong learning skills.



Build a personalized learning environment using Co-create curriculum materials (teachers and students working together)

Create personalized learning plans in collaboration with teachers/mentors using the technology or tools of their choice (e.g., social media, search engines, videos, blogs, online articles)





Personalized learning: Identify learning styles and patterns







AI and assessment

AI can help to:

A survey of 464 participants conducted by a private education company in 2022 suggests that AI will have the greatest impact on testing and assessment: **75% of respondents stating that the main reason to adopt AI in higher education is improved learner outcomes.** (HolonIQ, 2023).



Identify patterns such as why a student is not progressing



If progress is based on lack of commitment or motivation



Identify if lack of progress is a matter of timing and insufficient repetition, with short-term memory not having yet turned into long-term memory







Malaysia and Oman applied a set of machine learning algorithms based on students' cumulative GPA, attendance, and grades from the first exam as well as pre-requisite courses

A field test of the model found it to be efficient, identifying students whose final results might have been unsatisfactory and enabling the instructor to provide personalized support to those at-risk students





Al in student evaluation

Al-empowered grading systems can automatically assign (or suggest) grades in real-time, not just as a final evaluation at the end of the course but throughout the entire learning process

AI can help to:

- Track students' performance
- Further filter to recommended materials to help improve grades
- Ensure that what has been learned is remembered in the long term
- Scheduling refresher exercises along the monitoring process





Al in student evaluation – limitations





Education cannot be reduced to a set of purely quantitative variables and methods



Leads to solutions that are oriented towards technology rather than pedagogy

While AI-based tools can be helpful for monitoring and reinforcing the consolidation of learning, they can not replace human professors



Students are already using AI tools in assessments



unesco

A 2023 survey conducted in the USA found that 43% of the 1,000 university students surveyed have utilized AI tools like ChatGPT, with half of these users leveraging AI assistance for assignments or exams



Mainly completed work independently but used AI for specific parts



Relied heavily on AI for the bulk of their assignments



Submitted work produced by AI without making any modifications



Latest research: What students say about AI in higher education

"Please do not assume the worst of us. Rather, teach us how to use this technology in the right way and learn alongside it"

- Students have used ChatGPT to:
 - Explain new concepts
 - Get quick definitions
 - Assist in discussions
 - Critique its responses
- >80% understand ChatGPT's limitations and potential inaccuracies
- They see it as an 'upgraded version of Google' / 'interactive Wikipedia'
- Students want teachers to teach them:
 - How to use AI tools
 - About the risks, biases and limitations of these tools









Adapting to AI in assessment

Deploy other software tools to check for AI-generated text

Change exam-based assessments to oral, handwritten or invigilated formats

Use assessments that are difficult for AI tools to produce e.g., laboratory activities, group work, reflections, grading participation, scaffolded assignments

Update guidelines to allow the use of AI tools in assessments, sometimes with conditions e.g., it may be used to support planning but AI generated text may not be used in the final output, it is permitted but usage must be disclosed



Create new forms of assessment using AI tools





Main policy areas affected by AI

Academic integrity

HEIs need to establish policies and regulations to ensure fair and ethical academic practices:

Guidelines on preventing plagiarism



- detecting AI-generated content
- Ensure AI technologies are used appropriately in student assessments



Establish guidelines to ensure the ethical use of AI in research

- issues related to privacy
- data security
- bias mitigation
- transparency

AI transparency and accountability

Providing clear explanations of how AI technologies are used within the institution.

- the data sources used
- decision-making processes involved





Initiatives to integrate AI in policies



University of Helsinki (Finland): Specific AI ethics committees to oversee the ethical implications of AI in research and teaching. AI projects are evaluated to:

- ensure compliance with ethical guidelines
- promote responsible AI practices

Tec de Monterrey (Mexico): Guidance on the use of ChatGPT for faculty and students. Professors are encouraged to discuss the appropriate and ethical use of ChatGPT in class.

Tecnológico de Monterrey

The guidelines include:

- how to appropriately use AI (and when not to use it)
- steps to follow once there has been a misuse





How AI could transform teaching, learning and assessment

Improve the student experience

- Personalised learning
- Use of VR/AR tools for experiential learning
- Proliferation of chatbots for information provision
- More training of generative AI tools to assist students

Rethink assessment

- Move away from bans on AI tools
- Integrate Al into evaluations
- Identify alternative assessment methods







Transversal skills for the AI era

AI will be embedded in our daily lives for every professional, beyond STEM areas and for every citizen, beyond higher education.







Critical thinking

Critical thinking offers a way to guide students to become more discerning in their self-directed learning rather than encouraging passive consumption of information

On average, only 45% of university students demonstrated proficiency in critical thinking

HEIs need to continue developing this skill throughout the student's development







AI ethics: A set of values, principles, and techniques that employ widely accepted standards of right and wrong to guide moral conduct in the development and use of AI technologies







UNESCO Recommendation on the Ethics of AI



- Provides a foundation so that AI systems work for the betterment of individuals and societies
- Also for the good of the environment and ecosystems
- Designed to prevent harm from or by Al
- Endorsed by Member States in November 2021
- Available free to everybody, in all six UNESCO languages, in UNESCO's Digital Library (UNESDOC), <u>https://unesdoc.unesco.org/</u>





A Primer for Higher Education Stakeholders











AÑOS

Instituto Internacional para la Educación Superior en América Latina y el Caribe

Promoviendo la educación superior para todas las personas

Thank you!

www.iesalc.unesco.org





@unesco.iesalc

O

