

AI Integration in Higher Education: A Comparative Study of Professional and Pedagogical Practices Across Europe

The case study of Cyprus

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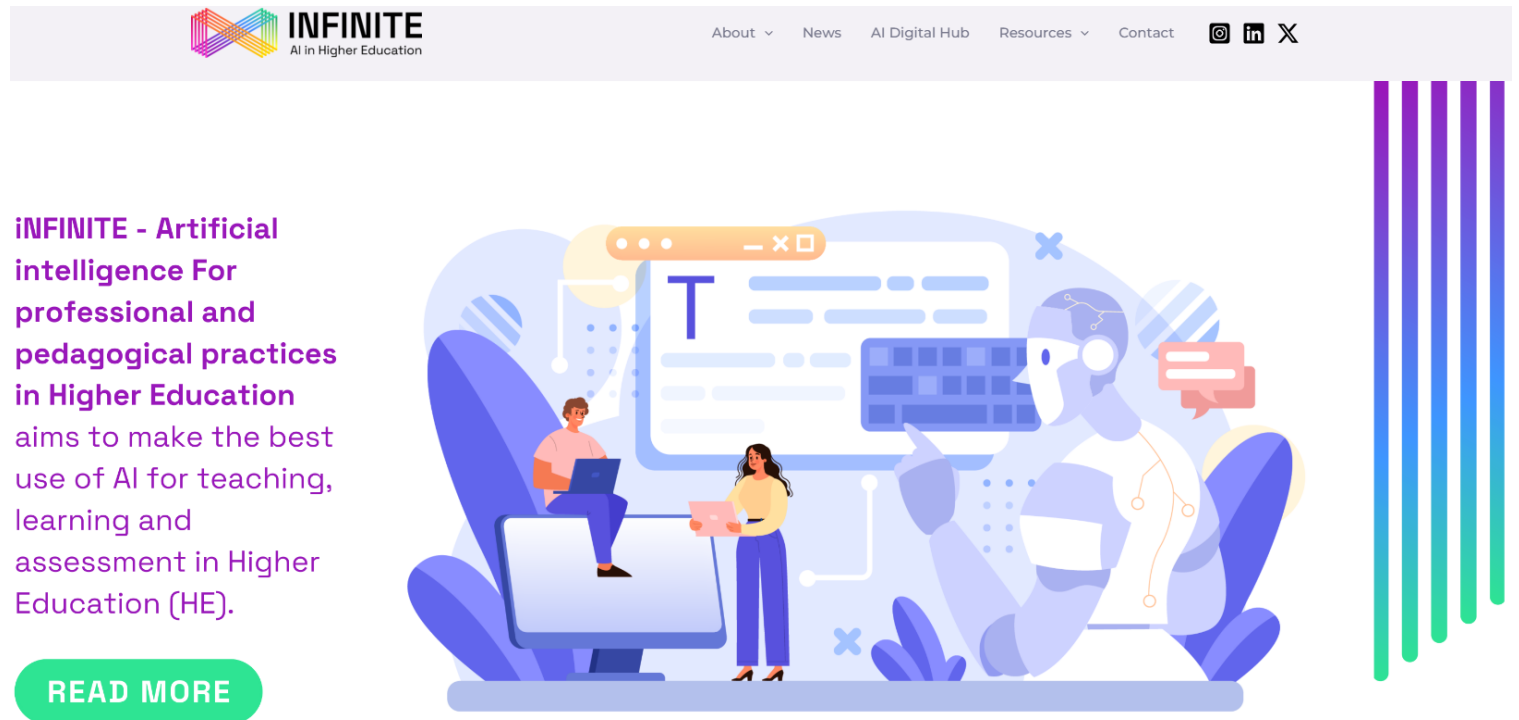
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INFINITE Project

- <https://infinite-erasmus.eu/>
- INFINITE – artificial intelligence For professional and pedagogical practices in Higher Education (HE) aims to make the best use of AI for teaching, learning and assessment in HE.

Partners:

1. University of Groningen (NL)
2. University of Nicosia (CY)
3. University College Dublin (IR)
4. University of the Aegean (GR)
5. All Digital AISBL (BE)
6. CARDET (CY)

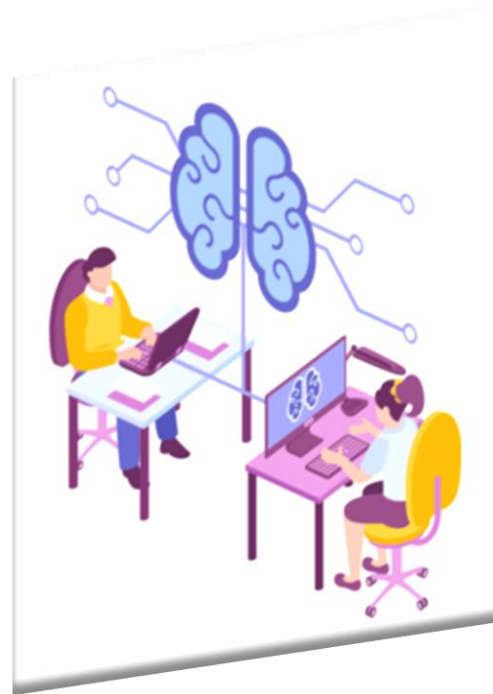


INFINITE Project

AIM

The project aims to prepare:

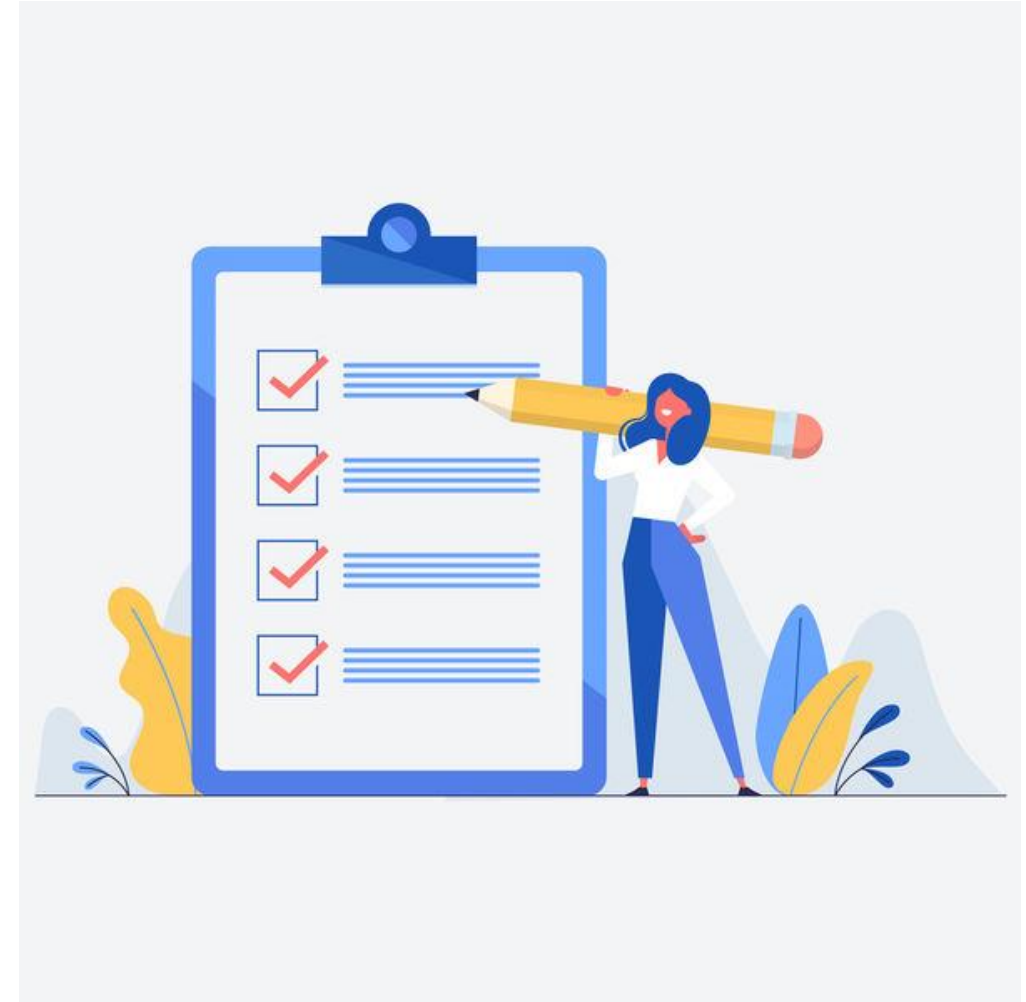
- academics to use AI for innovative teaching and assessment, promoting students' understanding of the interdisciplinary nature and implications this emerging technology has in various fields.
- students to leverage AI for their learning, through a complementary blended course designed for them.



Objectives

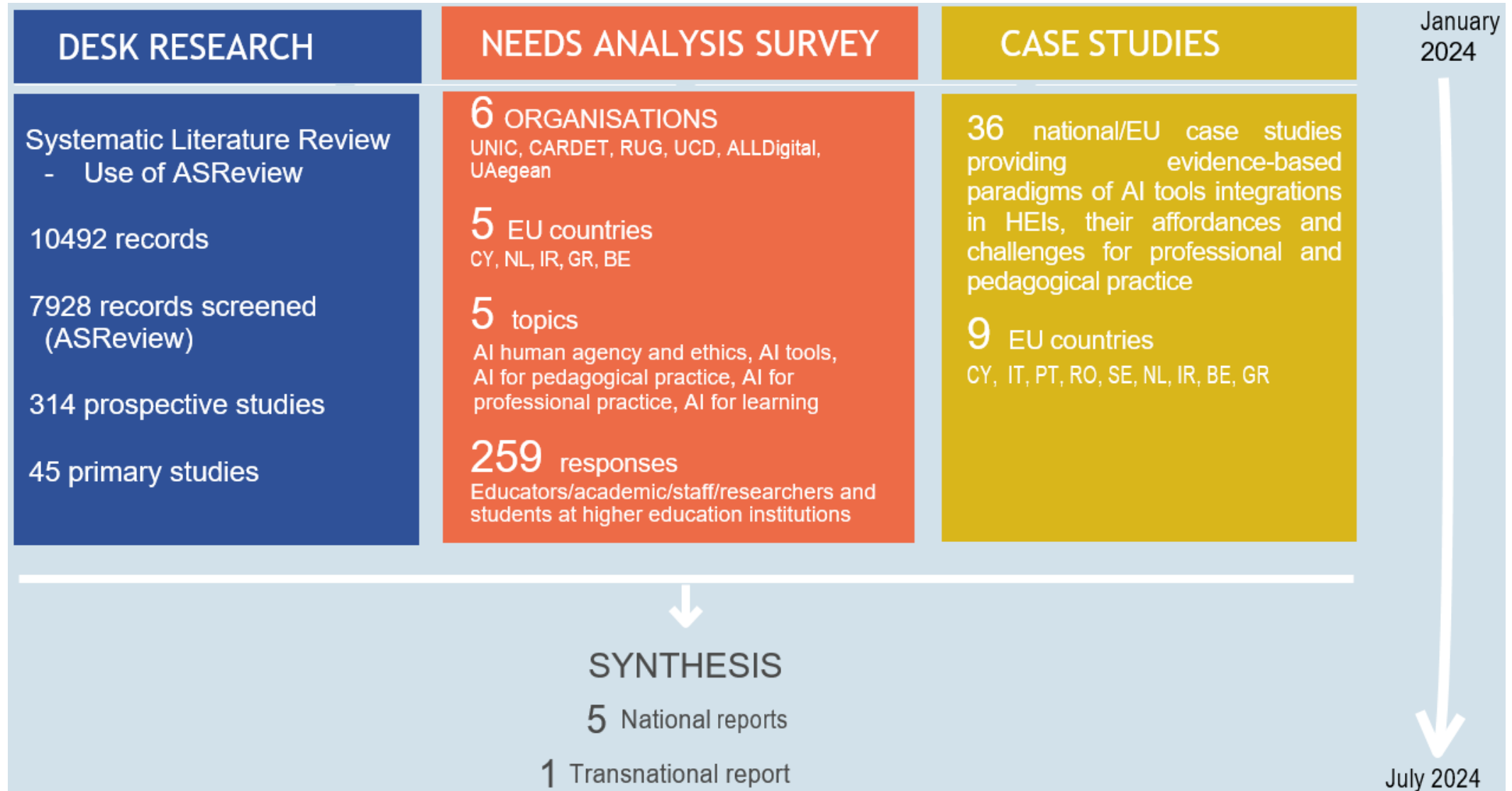
The project is based on four specific objectives:

1. **Raising awareness** about the affordances and challenges of AI for stimulating innovative professional and pedagogical practices in HE
2. **Developing hands-on resources** for HE academics to recognise and leverage AI for their professional and pedagogical practice, considering the ethical implications
3. **Building HE academics' and students' digital competences, readiness and resilience** to effectively use AI with ethical responsibility and integrity, for teaching, learning and assessment
4. **Promoting HE institutions' digital transformation through capacity-building and preparedness** of the HE community, to leverage AI for professional and pedagogical practices



Methodology

Desk and field research



Desk and field research

Mapping the landscape of AI in HE

- What are the current applications of AI-based tools for professional and pedagogical practice in HE?
- What are the risks of AI-based tools in HE teaching and learning?
- What is the impact of AI use on university teachers' and university students' teaching and learning process?



The results from the case study in Cyprus

- What are the current applications of AI-based tools for professional practice in HE?

Professional Practice

- **Automated scheduling:** Creating and managing schedules efficiently.
- **Attendance tracking:** Recording and monitoring student attendance.
- **Resource allocation:** Distributing resources effectively.
- **Data analytics:** Using data to predict trends and analyse performance.
- **Document management:** Automating tasks like creating and managing documents.
- **Research support:** Assisting with literature reviews and data analysis.



- What are the current applications of AI-based tools for pedagogical practice in HE?



Pedagogical Practice

- **Personalised learning:** Tailoring instruction to individual student needs.
- **Assessment and feedback:** Using AI for grading and providing personalised feedback.
- **Content creation and curation:** Generating and organising educational content.
- **Student support:** Offering virtual tutoring and chatbot assistance.
- **Engagement and interaction:** Creating interactive learning experiences.
- **Skill development:** Fostering critical thinking and problem-solving skills.
- **Language learning:** Providing language translation and practice tools.
- **Accessibility and inclusivity:** Ensuring that educational resources are accessible to all students.

- What are the risks of AI-based tools in Higher Education teaching and learning?



Ethical Considerations

- *Bias and Fairness*
- *Privacy Concerns*
- *Impact on Student Learning*

Technical Challenges

- *Black Box Problem*
- *Transparency and Accountability*
- *Vulnerability to Attacks*
- *Language Limitations*

Implementation Challenges

- *Resistance to Adoption*
- *Dependence on AI*
- *Resource Requirements*

- What is the impact of AI use on university teachers' and university students' teaching and learning processes?

University Teachers

- **Improved Teaching Efficiency:** Automation of administrative tasks and personalised instruction.
- **Enhanced Feedback and Assessment:** More effective feedback and assessment processes.
- **Professional Development & Life Long Learning:** Opportunities for professional growth through AI literacy.
- **Data analytics:** Using data to predict trends and analyse performance.
- **Content Creation:** AI tools can assist in creating lecture notes, assignments, and other teaching materials.



- What is the impact of AI use on university teachers' and university students' teaching and learning processes?

University Students

- **Personalised Learning:** Tailored learning paths based on individual needs and performance.
- **Increased Engagement:** Interactive learning tools and instant feedback.
- **Improved Writing Skills:** Assistance with generating ideas, structuring essays, and improving writing.
- **Critical Thinking and Problem-Solving:** Development of critical thinking skills through AI-driven simulations and scenarios.



- What is the impact of AI use on university teachers' and university students' teaching and learning processes?

Overall Benefits

- **Time-Saving:** AI can streamline tasks and processes.
- **Equity and Accessibility:** Increased access to resources for a broader audience.
- **Data-Driven Decision Making:** Informed decision-making based on data analysis.
- **Preparation for Future Careers:** Equipping students with skills relevant to the future workforce.



Field Research

AI Needs Analysis Survey

- Demographic Data
- AI human agency and ethics (common)
- AI tools [common]
- AI for pedagogical practice [for staff]
- AI for professional practice [for staff]
- AI for learning [for students]
- Open-ended questions - additional comments [common]



Field Research

AI human agency and ethics (common)

HE Staff and Students:

- **Ethical AI Advocacy:** Both groups demonstrate a proactive stance towards advocating for ethical AI use.
- **Awareness of Risks:** Both groups recognise the potential risks of AI to human rights and privacy.
- **AI Knowledge:** Both groups have a foundational understanding of publicly available AI tools.
- **Academic Integrity:** Varying levels of readiness among both groups in integrating AI into academic integrity practices.

Overall:

- **Diverse Perspectives:** Both HE staff and students exhibit diverse perspectives on AI ethics and practices.
- **Foundational Understanding:** Both groups possess a basic understanding of AI ethics and practices.
- **Need for Further Development:** While there is a general understanding, further development is needed to ensure effective integration of AI into educational settings.

Field Research

AI tools (staff)

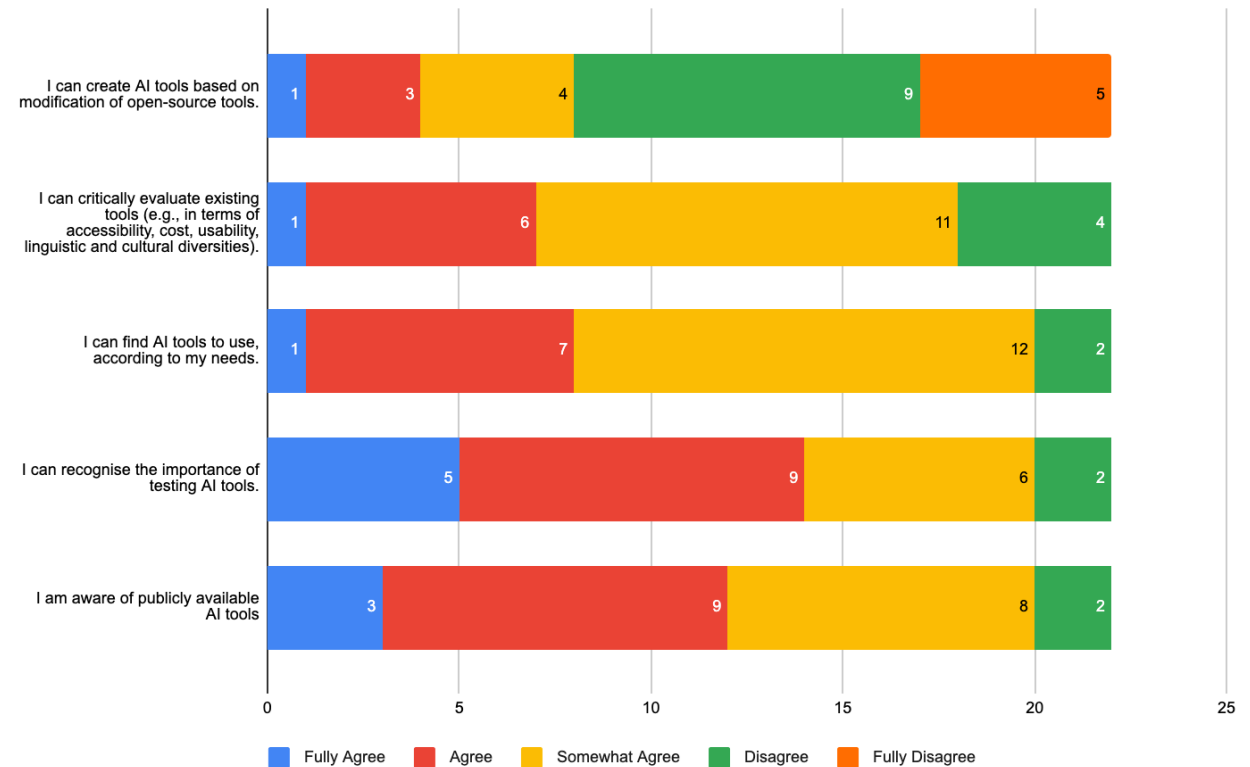
Positive Findings:

- **Awareness of AI Tools:** A majority of participants (12/22 – 54.55%) are aware of publicly available AI tools.
- **Testing and Evaluation:** Most participants (14/22 – 64.64%) recognise the importance of testing AI tools.

Challenges in Using AI Tools:

- **Lack of Confidence:** Participants may lack confidence in their ability to create or modify AI tools.
- **Limited Access to Resources:** Insufficient time or technical support could inhibit AI tool usage.

Chart 6. AI Tools [staff]



Field Research

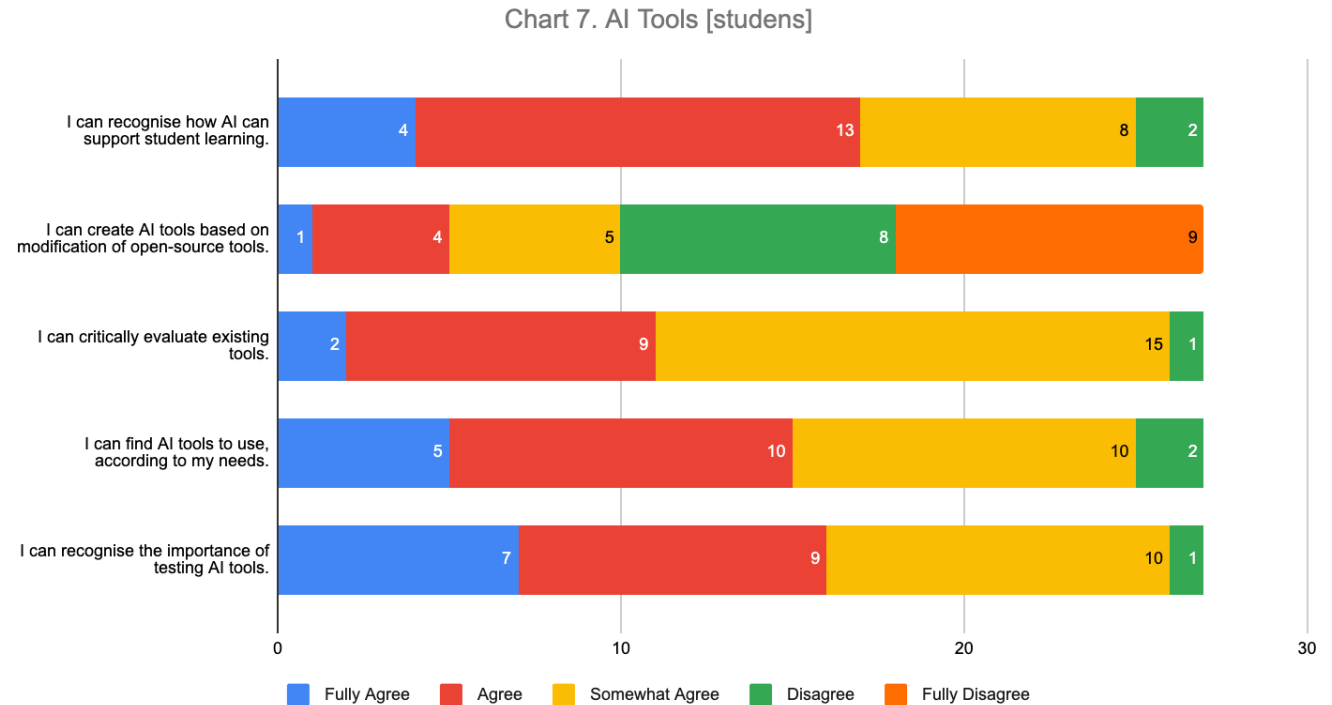
AI tools (students)

Positive Findings:

- A majority of students (17/27 – 62.96%) **recognise AI's potential to support learning.**
- Many students (16/27 – 59.26%) understand the **importance of testing AI tools.**

Challenges in Using AI Tools:

- **Finding Appropriate Tools:** Many students struggle to find AI tools that meet their educational needs.
- **Critical Evaluation:** A significant number of students cannot critically evaluate existing AI tools.



Field Research

AI tools (common)

Similarities:

- **Importance of Testing:** Both groups recognise the importance of testing AI tools.
- **Awareness of Publicly Available Tools:** Both groups are aware of publicly available AI tools.

Challenges:

- **Practical Application:** Both groups face challenges in effectively using AI tools.
 - **Staff Limitations:** Staff members may lack skills and resources to create or modify AI tools.
 - **Student Limitations:** Students may struggle to find and evaluate AI tools that meet their needs.
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- **Need for Targeted Education:** Addressing these challenges requires targeted education and resource allocation.
 - **Potential for Greater Adoption:** Overcoming these challenges could facilitate wider adoption and utilisation of AI tools in education.

Field Research

AI for professional practice [for staff]

- **Research Tasks:** There is a mixed response, with some staff members open to using AI and others expressing reluctance.
- **Organisational Communication:** A significant number of staff members see the potential of AI to enhance communication.
- **Continuous Learning:** Many staff members are confident in using AI for career development.
- **Curriculum Design:** A notable number of staff members recognise AI's potential for improving curriculum design.
- **Ethical Concerns:** There are concerns about student safety, emphasising the importance of ethical AI use.

Overall, while there is a positive outlook on AI, staff members are cautious about potential risks and emphasise the need for ethical considerations.



Field Research

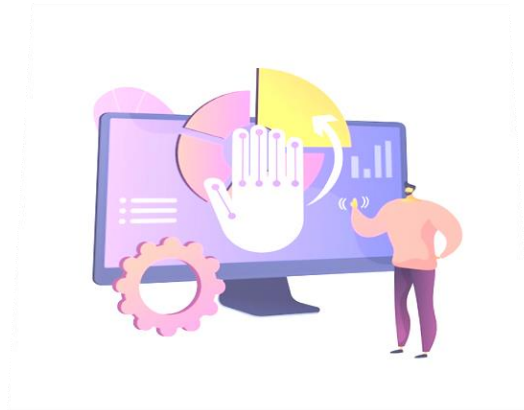
AI for learning [for students]

Positive Perceptions:

- **Lifelong Learning:** 17/27 (62.96%) students believe AI can support lifelong learning.
- **Study Support:** 15/27 (55.56%) students use AI for tasks like information search, programming, and essay writing.
- **Engaging with Subjects:** 14/27 (51.85%) students use AI to study concepts and obtain explanations.

Less Enthusiasm for Mentoring:

- **Mentoring:** 8/27 (29.63%) students disagree with using AI for career advice, study tips, and life guidance.



Field Research

Open-ended questions - additional comments [common]

- Ethics and Budget Concerns
- Training and Time Constraints
- Effectiveness and Reliability
- Educational Adaptation
- Specific Needs and Practical Resources

Discussion

Desk & Field Research

- Recognition of Benefits and Applications
 - enhancing assessment processes
 - improving digital literacy
 - streamlining administrative tasks like scheduling and data analytics
- Common Challenges and Concerns
 - fairness, bias, and privacy implications associated with AI applications

Discussion

Implications for Educational Practices

- **Targeted Training:** Provide targeted training to educators and students to enhance their skills in using AI tools effectively and ethically.
- **Clear Ethical Guidelines:** Develop and implement clear ethical guidelines for the use of AI in education to address potential risks and ensure responsible practices.
- **Enhanced Support:** Provide adequate support to educators and students to help them navigate the challenges and opportunities of AI integration.
- **Digital Literacy:** Promote digital literacy among educators and students to equip them with the skills needed to use AI effectively.
- **Critical Thinking:** Foster critical thinking skills in educators and students to enable them to evaluate the benefits, limitations, and risks of AI applications.
- **Balanced Approach:** Adopt a balanced approach that recognises both the potential benefits and challenges of AI integration.

Conclusion

This study has revealed a diverse range of AI applications in HE, highlighting both benefits and risks. AI can enhance teaching quality, streamline administration, and support personalised learning. However, ethical concerns such as bias, privacy, and equity must be addressed.

To effectively integrate AI, institutions should:

- Prioritise AI literacy training.
- Invest in technological infrastructure.
- Foster collaborative partnerships.
- Explore emerging AI technologies.
- Address limitations and biases in research.

By doing so, HE can harness the transformative potential of AI while ensuring ethical and responsible use.

Next Steps

- **AI Literacy Toolkit** with a collection of 35 best case studies, readiness checklist and visualised framework for HE academics to get familiar with and select AI tools for professional and pedagogical practices
- **AI Digital Hub** – an interactive platform to assist HE academics with wide range of free AI-driven tools and examples for professional, teaching, learning and assessment purposes
- Faculty and student **capacity-building courses** on how to critically and wisely use AI for teaching, learning and assessment
- **Action Plan** for HEIs



Thank you!

