



INFINITE
AI in Higher Education

FEBRUARY , 2026

**AI CAPACITY BUILDING
AND COURSES
TRANSNATIONAL REPORT**



Document description

Due date of deliverable	28/02/2026
Submission date	28/02/2026
File name	D 4.3 INFINITE_Transnational
Deliverable responsible	UNIVERSITY OF AEGEAN
Author(s)	Kostas, A., Spanos, D., Tzortoglou, F., Sofos, A.
Reviewer(s)	INFINITE Consortium
Revision number	01
Status	Final
Dissemination level	PU/PP/RE/CO
Key words	Transnational report, AI in HEI, Blended courses, In-classroom implementations

Revision History

Version	Date	Reviewer(s)	Comments
1.0	01/02/2026	INFINITE Consortium	Minor revisions requested by the consortium
2.0	28/02/2026	INFINITE Consortium	Final approved version

Table of Contents

Revision History	1
Table of Contents	2
Executive summary	4
Transnational Synthesis of WP4 Implementation	6
Purpose and Scope of the Synthesis	6
Implementation Models and Structural Drivers	8
Cross-Country Patterns and Structural Differences	9
Transnational Challenges	9
Operational and Logistical Challenges	9
Pedagogical Challenges	10
Technical and Institutional Challenges	11
Lessons Learned	11
Institutional Recommendations	12
Pedagogical Recommendations	12
Implementation Strategy Recommendations	13
Conclusions	13
Appendix	15
Pre-post tests (blended courses)	15
Teachers pre/post test	15
Students pre/post test	16
Open-ended questions (classroom implementations)	17
Teachers	17
Students	17
ALL DIGITAL National Report	19
Executive summary	19
Implementation of the blended capacity-building courses	20
Evaluation and assessment findings	24
Challenges, lessons learned and recommendations	29
UCD (University College Dublin) National Report	31
Executive summary	31
Implementation of the blended capacity-building courses	33
Real-classroom implementations from HE instructors	36
Evaluation and assessment findings	39
Challenges, lessons learned and recommendations	52
RUG (University of Groningen) National Report	57
Executive summary	57

Implementation of the blended capacity-building courses	58
Real-classroom implementations from HE instructors	62
Evaluation and assessment findings	64
Challenges, lessons learned and recommendations	86
UAEGEAN (University of the Aegean) National Report	89
Executive summary	89
Implementation of the blended capacity-building courses	91
Real-classroom implementations from HE instructors	93
Evaluation and assessment findings	97
Challenges, lessons learned and recommendations	106
UNIC (University of Nicosia) & CARDET National Report	109
Executive summary	109
Implementation of the blended capacity-building courses	112
Real-classroom implementations from HE instructors	116
Evaluation and assessment findings	118
Challenges, lessons learned and recommendations	131

Executive summary

This Transnational Report presents the consolidated findings from the implementation of Work Package 4 (WP4) of the INFINITE project across five partner countries: Belgium, the Netherlands, Greece, Ireland, and Cyprus.

WP4 focused on the design and delivery of blended AI capacity-building courses for Higher Education (HE) academics and students, followed by real-classroom implementations led by trained instructors.

The specific objectives of WP4 were to:

- develop HE academics' AI literacy digital skills to use selected AI-based tools in professional and pedagogical practices, following ethical standards
- develop HE students' AI literacy digital skills to use selected AI-based tools in their learning, following ethical standards
- prepare and support HE instructors and students to adopt and adapt the project resources in their teaching, learning and assessment
- raise awareness of the ethical implications of using AI-based tools in higher education

Across all national contexts, the blended courses were successfully implemented using flexible delivery formats tailored to institutional realities, combining onsite workshops, online sessions, and asynchronous learning environments. Participation targets were largely achieved, and in several cases exceeded, particularly where activities were embedded within institutional structures. In network-based contexts, participation was strong but voluntary engagement affected completion of pre- and post-assessment instruments.

Pre- and post-survey findings across all partner institutions indicate a consistent upward shift in self-reported knowledge, skills, and confidence regarding AI integration in teaching, learning, and research. While participants entered the programme with generally positive attitudes towards AI, the intervention significantly strengthened confidence in practical pedagogical use, tool evaluation, and ethical awareness. The most pronounced improvements were observed in participants' ability to critically assess AI tools and recognise ethical considerations.

Classroom implementations further demonstrated that AI integration, when framed pedagogically and critically, fosters high levels of student engagement and reflective dialogue. Across contexts, instructors reported that structured, inquiry-based scenarios supported meaningful discussion

around both opportunities and risks of AI, contributing to the development of critical AI literacy rather than uncritical adoption.

At the same time, the implementation process surfaced cross-cutting operational, pedagogical, and technical challenges. These insights provide important evidence for designing scalable and sustainable AI capacity-building initiatives in HE.

This report synthesises national experiences to extract transnational lessons learned and formulate recommendations for future AI integration initiatives in European HE.

Transnational Synthesis of WP4 Implementation

Purpose and Scope of the Synthesis

This section presents a comparative analysis of the implementation of Work Package 4 (WP4) across the five participating countries (Belgium, the Netherlands, Greece, Ireland, and Cyprus). While national reports provide detailed accounts of local implementation, this synthesis aims to generate transnational added value by identifying common patterns, divergences, and structural factors influencing outcomes.

Specifically, the synthesis:

- consolidates participation and implementation data across contexts
- compares learning outcomes and trends in AI capacity-building
- examines differences in delivery models and institutional embedding
- identifies cross-cutting challenges and enabling conditions
- extracts transferable lessons and strategic implications for higher education institutions (HEIs)

The analysis is based on both quantitative (pre–post survey results, participation indicators) and qualitative (participant feedback, instructor reflections) evidence reported by all partners.

Participation and Implementation Overview

The implementation of WP4 across partner countries resulted in substantial engagement from both higher education (HE) academics and students, with participation patterns influenced by institutional context and delivery model.

Table 1. Participation Overview by Country

Country	HE Academics (Target vs Actual)	HE Students (Target vs Actual)	Delivery Format	Context type
Belgium (All Digital)	32 (target 25)	35 (target 25)	Online webinars	Network-based

Ireland (UCD)	25 (target 25)	81 (target 25)	Embedded blended courses	Institutional
Netherlands (RUG)	25 (target 25)	37 (target 25)	Blended	Institutional
Greece (UAegean)	25 (target 25)	25 (target 25)	Blended	Institutional
Cyprus (UNIC & CARDET)	25 (target 25)	25 (target 25)	Blended	Institutional

Across all countries, academic participation targets were achieved, while student participation frequently exceeded expectations in institutional contexts. A clear distinction emerges between institutionally embedded implementations and network-based delivery models. Institutional implementations ensured higher completion rates, stronger engagement, and more robust evaluation datasets, while network-based approaches enabled broader outreach but lower survey completion due to voluntary participation.

These findings indicate that participation outcomes are closely tied to structural integration within institutional frameworks, rather than dissemination reach alone.

Comparative Learning Outcomes

Across all partner countries, pre-post evaluation results demonstrate a consistent positive shift in participants' AI-related knowledge, skills, and attitudes.

Table 2. Comparative Trends in Learning Outcomes

Dimension	Pre-intervention Level	Post-intervention Level	Trend Strength	Consistency
AI Knowledge	Moderate	High	Strong ↑	Very consistent
Tool Evaluation	Low-Moderate	High	Strong ↑	Consistent
Practical Application	Low	Moderate	Moderate ↑	Variable

Ethical Awareness	Moderate	High	Very strong ↑	Highly consistent
Intention to Use AI	Moderate–High	High	Moderate ↑	Consistent

The most significant and consistent improvements across all contexts were observed in ethical awareness and critical evaluation of AI tools. Participants demonstrated increased ability to assess AI outputs, recognise limitations, and engage with issues such as bias, transparency, and responsible use.

In contrast, improvements in practical application were more moderate and uneven. While participants gained confidence in understanding AI tools, translating this knowledge into concrete teaching, learning, and assessment practices remained challenging. This reflects broader structural constraints, including institutional policies, assessment models, and limited opportunities for sustained hands-on integration.

Overall, the findings indicate that WP4 was particularly effective in strengthening critical AI literacy, while deeper behavioural change requires longer-term institutional and pedagogical transformation.

Implementation Models and Structural Drivers

Analysis across national contexts reveals three main implementation models, each associated with distinct outcomes.

Institutionally Embedded Model

Implemented in Ireland, the Netherlands, Cyprus, and Greece, this model integrated WP4 activities within formal courses or professional development frameworks. It resulted in high participation, strong completion rates, and consistent learning gains. Alignment with disciplinary contexts and institutional support were key enabling factors.

Blended Workshop Model

Applied across multiple partners, this model combined onsite and online learning components. While offering flexibility, it revealed a trade-off between accessibility and engagement, with onsite sessions consistently producing deeper interaction and learning.

Network-Based Model

Observed in Belgium, this model achieved broad reach across diverse participants through open webinars. However, voluntary participation limited completion rates and reduced the robustness of evaluation data.

Across all models, a central finding emerges:

effectiveness is driven less by content design and more by the degree of institutional embedding and structural support.

Cross-Country Patterns and Structural Differences

Despite contextual diversity, the transnational analysis reveals strong convergence in participant development trajectories. Across all countries, participants moved from moderate awareness and mixed confidence toward higher levels of critical understanding, ethical awareness, and informed engagement with AI.

A key shared pattern is the prominence of **ethical reflection as a central driver of engagement**. Participants consistently valued opportunities to explore issues such as bias, academic integrity, and responsible use, indicating that ethics is not a supplementary component but a core entry point for AI literacy.

At the same time, structural differences significantly influenced outcomes. Institutional implementations demonstrated stronger engagement and learning impact due to alignment with curricula and formal structures, while network-based approaches prioritised reach over depth. Variations in national regulatory frameworks and institutional policies further shaped the extent to which participants could experiment with AI tools.

These findings highlight a fundamental distinction between **access to AI learning opportunities** and **capacity for sustained, practice-oriented integration**.

Transnational Challenges

Operational and Logistical Challenges

1. Participation levels were strongly influenced by whether the course was embedded within formal institutional structures or offered through voluntary open calls. When the training was integrated within

institutional programmes, completion rates for surveys and learning activities were significantly higher.

2. Ensuring completion of pre- and post-assessment instruments proved difficult in contexts where participation was voluntary and not formally linked to credit, certification, or professional development requirements.
3. The timing of course delivery needed to be carefully aligned with academic calendars, as examination periods and peak teaching workloads reduced availability and sustained engagement.
4. Recruitment often depended on internal networks and faculty gatekeepers, which meant that participation levels varied depending on institutional communication channels and support from programme leaders.
5. Sustaining engagement beyond initial workshops required structured follow-up mechanisms, as single-session interventions were not sufficient to ensure long-term behavioural change.

Pedagogical Challenges

1. Participants demonstrated significant variation in their prior experience and familiarity with AI tools, which created uneven starting points and required facilitators to manage diverse expectations and levels of confidence.
2. A clear gap emerged between conceptual understanding of AI and practical confidence in applying AI tools within real teaching and learning contexts. Participants often understood the theoretical value of AI but felt less secure in organising structured classroom activities using these tools.
3. Integrating AI into assessment practices raised concerns about academic integrity, fairness, and transparency, particularly where traditional product-based assessment models remained dominant.
4. Classroom discussions occasionally revealed polarised attitudes towards AI, with some participants expressing strong enthusiasm while others articulated scepticism or ethical reservations, including concerns about environmental impact and bias.

5. Instructors faced challenges in helping participants move beyond either uncritical adoption or categorical rejection of AI tools toward balanced, evidence-based judgement.

Technical and Institutional Challenges

1. Data protection regulations and institutional compliance frameworks limited the use of certain AI tools in some countries, particularly where personal data processing raised legal or ethical concerns.
2. Rapid technological developments in the AI ecosystem created uncertainty regarding the long-term relevance of specific tools presented during training activities.
3. Differences in digital infrastructure and platform accessibility across institutions influenced the ease with which participants could experiment with AI tools in structured learning environments.
4. In some cases, licensing restrictions or institutional firewalls limited access to AI systems during classroom implementations.

Lessons Learned

1. AI literacy training is most effective when it is framed as a process of critical engagement rather than as simple technical skill acquisition, as participants responded more positively to reflective analysis than to tool demonstrations alone.
2. Hands-on experimentation significantly increased participants' confidence, particularly when supported by structured scenarios and guided reflection rather than open-ended exploration.
3. Ethical reflection emerged as one of the strongest drivers of engagement across all partner countries, as participants valued opportunities to analyse bias, hallucination, transparency, and responsible use.
4. Blended delivery formats enhanced flexibility and accessibility, but onsite sessions generated deeper dialogue and stronger collaborative learning dynamics.

5. Embedding training activities within existing institutional programmes resulted in higher participation rates and more sustained engagement compared to purely voluntary dissemination models.
6. Participants benefited more from developing transferable competences, such as tool evaluation and critical judgement, than from mastering specific AI platforms that may become obsolete.
7. Classroom implementations demonstrated that redesigning assessment tasks toward formative and process-oriented models is more effective than attempting to restrict AI use.
8. The most significant shift observed across national contexts was the movement from uncertainty or polarisation toward informed and reflective confidence in AI integration.

Institutional Recommendations

1. HEIs should integrate AI literacy training within formal professional development frameworks rather than offering isolated workshops.
2. Universities should develop clear institutional guidelines on responsible AI use that address teaching, research, assessment, and data protection considerations.
3. Institutions should establish cross-departmental communities of practice to sustain dialogue and share effective AI integration practices beyond project timelines.
4. Formal recognition mechanisms, such as micro-credentials or professional development certification, should be considered to increase participation and completion rates.

Pedagogical Recommendations

1. Future capacity-building activities should systematically combine conceptual foundations with guided practical application in authentic teaching and research contexts.
2. Ethical analysis should remain a core and explicit component of all AI literacy programmes rather than a supplementary discussion.

3. Scenario-based learning designs should be adaptable to different disciplinary contexts to increase relevance for diverse academic fields.
4. Assessment strategies should be redesigned to emphasise process documentation, critical reflection, and transparency in AI-supported work.

Implementation Strategy Recommendations

1. Evaluation instruments should be embedded within synchronous learning sessions to improve response rates rather than distributed separately.
2. Course scheduling should account for academic workload cycles to optimise sustained participation.
3. Follow-up activities or peer exchange opportunities should be planned to encourage long-term application of AI literacy competences.
4. Future initiatives should prioritise competence-based learning outcomes over tool-specific training to maintain sustainability in a rapidly evolving AI landscape.

Conclusions

The transnational implementation of WP4 demonstrates that AI integration in higher education cannot be approached as a purely technological upgrade or as an isolated training activity. Rather, it represents a systemic transformation process involving pedagogy, institutional structures, and policy alignment.

Across diverse institutional and national contexts, the findings consistently show that effective AI capacity-building requires pedagogical reframing, structured critical reflection, and meaningful opportunities for hands-on engagement. While participants entered the programme with varying levels of familiarity and, in some cases, polarised attitudes, the intervention supported a measurable shift toward more informed, reflective, and responsible engagement with AI tools. This shift was particularly evident in participants' ability to critically evaluate AI outputs and engage with ethical considerations, even where practical application remained more uneven.

At the same time, the synthesis highlights that learning gains alone are not sufficient to ensure sustainable impact. The extent to which participants are able to translate knowledge into practice is strongly conditioned by institutional factors, including assessment models, governance frameworks, and access to appropriate tools. As such, institutional alignment emerges as a decisive factor in moving from awareness to meaningful integration.

Importantly, the transnational perspective confirms that many of the challenges identified—ranging from participation constraints and pedagogical gaps to regulatory and technical barriers—are not isolated but shared across European higher education systems. This convergence suggests that responses must also be coordinated and systemic.

The evidence therefore points to a clear pathway forward: AI literacy must evolve from short-term, fragmented experimentation toward structured, competence-based, and policy-aligned integration within higher education. This includes embedding AI literacy within formal curricula and professional development frameworks, supporting assessment redesign, and establishing clear institutional guidelines grounded in principles of responsible and ethical AI use.

Ultimately, the WP4 experience demonstrates that sustainable AI integration depends not only on developing individual competences, but on aligning pedagogical practices, institutional strategies, and European policy priorities. In this sense, AI capacity-building should be understood as a long-term transformation agenda, requiring continued investment, coordination, and critical engagement across all levels of higher education.

Appendix

Pre-post tests (blended courses)

Teachers pre/post test

Knowledge/skills

How confident do you feel about the following? (Not at all - To a very large extent, 5-point Likert)

1. Recognize concepts regarding AI in Education
2. Recognize the educational value of AI tools
3. Recognize benefits and challenges of AI tools in everyday tasks
4. Recognize the various applications of AI tools in teaching and learning
5. Recognize the various applications of AI tools in research
6. Find and evaluate AI tools based on their benefits and challenges
7. Organize teaching activities for your students using AI tools
8. Recognise ethical considerations related to AI tools

Attitudes

To what extent do you agree with the following statements? (Not at all - To a very large extent, 5-point Likert)

1. I intend to adapt my teaching practices to accommodate the changes brought by AI tools
2. I intend to use AI in my teaching
3. I intend to use AI in my research
4. I intend to use AI in my assessment
5. I am motivated to develop my skills in using AI tools
6. I intend to seek further professional development opportunities to better understand and use AI in education

7. I intend to seek further professional development opportunities to better understand AI ethics challenges

Students pre/post test

Knowledge/skills

How confident do you feel about the following? (Not at all - To a very large extent, 5-point Likert)

1. Recognize concepts regarding AI in Education
2. Recognize the educational value of AI tools
3. Recognize benefits and challenges of AI tools in everyday tasks
4. Recognize the various applications of AI tools in learning
5. Recognize the various applications of AI tools in research
6. Find and evaluate AI tools based on their benefits and challenges
7. Organize my learning using AI tools
8. Recognise ethical considerations related to AI tools

Attitudes

To what extent do you agree with the following statements? (Not at all - To a very large extent, 5-point Likert)

1. I intend to adapt my learning practices to accommodate the changes brought by AI tools
2. I intend to use AI in my learning
3. I intend to use AI in my essays and deliverables
4. I intend to use AI in my research
5. I am motivated to develop my skills in using AI tools
6. I intend to seek further training opportunities to better understand and use AI in education
7. I intend to seek further training opportunities to better understand AI ethics challenges

Open-ended questions (classroom implementations)

Teachers

1. Describe a specific example or activity where you integrated an AI tool into your teaching. (e.g., in lesson delivery, creating activities, or assessment) What was the process, and what was the outcome you observed in your students?

This question aims to gather information for section 2.2 "Description of implementations"

2. What do you perceive as the most significant barrier to the adoption of AI by educators at your university/in your country?

Designed to directly feed into section 4.1 "Challenges".

3. Based on your experience, what do you consider to be the most significant benefit of using AI for your students' learning process?

This question will provide valuable material for section 4.2 "Lessons learned from implementation".

4. After this experience, do you plan to continue using AI in your teaching and/or research? If so, in what ways, and what kind of support or additional training would be helpful to you?

Helps gather suggestions for section 4.3 "Recommendations for future implementations".

5. Do you have any thoughts or concerns about ethical issues (e.g., academic integrity, data privacy, algorithmic bias) that arose from the use of AI by you or your students?

This corresponds to the need to recognise ethical considerations, as mentioned in the closed-ended questionnaire.

Students

1. In what ways did the use of AI tools in your course help you better understand the subject matter or complete your assignments? Can you provide a specific example?

Aims to gather information for the "Feedback from students" subsection and assesses the practical application of knowledge.

2. Did you encounter any difficulties or have any concerns while using the AI tools suggested in the course? (e.g., were they difficult to use, was the information inaccurate, were you concerned about your personal data?)

Provides the students' perspective on challenges, which is useful for section 4.1 "Challenges".

3. Beyond the course's subject matter, do you feel that using these AI tools helped you develop any new skills (e.g., critical thinking, digital literacy, improved research skills)?

Links to the project's "Knowledge/skills" development goals.

4. How has your opinion on using AI in learning and your studies changed (if at all) after participating in this course?

A general question that assesses the change in student "Attitudes".

5. Would you use similar AI tools in other courses in the future? What would encourage you to use them, and what might discourage you?

Provides valuable information for future implementations and recommendations, as requested in section 4.3.

ALL DIGITAL National Report

Executive summary

This national report presents the outcomes of the implementation of Work Package 4 (WP4) of the INFINITE project at All Digital(Belgium). WP4 focused on building AI-related capacity in higher education through blended courses for HE academics and students, as well as real-classroom implementations led by participating instructors.

All Digital delivered two blended capacity-building courses for its members through a series of online webinars, one designed for higher education academics and one for higher education students. Drawing on its broad pan European network, the activities reached participants from diverse institutional and professional backgrounds across multiple countries and were both based on the 12 learning scenarios collaboratively developed by the INFINITE consortium.

The sessions were streamed via Microsoft Teams, recorded, and subsequently published on the All Digital YouTube channel and promoted across social media channels.

For the HE academics' activity, a total of 45 participants registered, 32 attended the live webinar, and the recording was viewed 46 times afterwards. Despite the strong interest and positive feedback, only a limited number of participants completed the pre test (19) and post test (10), even after multiple reminders. This can be explained by the fact that the activity was disseminated through All Digital's network, reaching members with diverse professional profiles rather than a clearly defined academic cohort. As participation in the assessment was voluntary, many participants joined the webinar primarily for knowledge exchange and professional development purposes, rather than for formal evaluation.

For the HE students' activity, 31 participants registered, 15 attended the live session, and 21 viewed the webinar recording. Despite the strong interest and positive feedback received, only a limited number of participants completed the pre test (13) and post test (6), even after multiple reminders. This can be attributed to the fact that the activity was disseminated through All Digital's network, reaching members with diverse professional profiles rather than a clearly defined or formally enrolled student cohort. As participation in the assessment was voluntary, many participants engaged primarily for

knowledge exchange and professional development purposes, rather than for evaluative or academic credit.

Overall, the implementation of WP4 in Belgium successfully contributed to the development of informed, reflective, and ethically grounded approaches to AI use in higher education. The findings highlight the importance of pedagogically framed AI literacy initiatives and provide concrete insights and recommendations for future implementations at both national and European level. Overall, All Digital met the quantitative participation targets, while completion rates for the pre- and post- assessment instruments remained relatively low despite the efforts made.

Implementation of the blended capacity-building courses

Course delivery for HE academics

In line with the project proposal and the guidelines provided by the WP4 leaders, All Digital implemented the blended capacity-building course for Higher Education (HE) academics, based on the set of 12 learning scenarios developed collaboratively by the INFINITE project partners. For All Digital, as a pan-european association representing members across Europe, the format described in the project proposal consisted of delivering two online webinars for its members.

Participant recruitment was carried out through All Digital members platform, social media dissemination and personalised emails. The banner and registration page was created as follows: <https://events.teams.microsoft.com/event/90cf0d66-bb5d-4192-99b4-1686087967d2@8d8b2be4-0c2e-4b10-8d42-9ef10987a89f>

The invitation was addressed to All Digital Members that include adult education centres, digital training providers, NGOs, community organisations, libraries, social enterprises, and public bodies across Europe working on digital skills and inclusion.

Example of social media posts invitation to register: [\[link\]](#)

Example of personalised email invitation:

[Dear Member,

I'm reaching out to share an invitation to join the first session of the "AI & Higher Education" Webinarseries, organised as part of the INFINITE Project, taking place on May 29th from 14:00 to 15:00 (CET). This Webinar will focus on AI & Higher Education Faculty, while the second one on June 12th - on AI& Students.

This interactive 60-minute webinar will present practical tools and resources developed through the project to support the integration of Artificial Intelligence in Higher Education. With a strong emphasis on student-centred approaches to teaching, learning, and assessment, the session aims to promote innovative educational practices by showcasing the effective use of selected AI tools.

Participants will gain insights into how these resources can be applied in everyday academic settings, helping to build a more adaptable and future-ready education system. To evaluate the session's impact, learning outcomes will be measured through pre- and post-tests.

We warmly welcome everyone interested in the transformative potential of AI in education - from educators and institutional leaders to digital learning professionals and curious minds exploring the future of learning.

Please find below the registration link, along with the detailed agenda:

<https://events.teams.microsoft.com/event/90cf0d66-bb5d-4192-99b4-1686087967d2@8d8b2be4-0c2e-4b10-8d42-9ef10987a89f>

I'm also including the following [LinkedIn post](#) - please feel free to share it with your network to help us spread the word!]

In total, 32 attended the Webinar and the video recording attracted 46 views after. The participants group included mostly academics and NGOs representatives from across Europe. Some of the profiles include representatives from Ghent University, Link Campus University, Hellenic Open University-DAISSy Research Group. In terms of gender distribution, the attendees profiles consisted of 15 women and 17 men.

The delivery of the blended course took place in May 2025 and was organised as an online learning experience, given opportunity to access all the material after the Webinar, including the recording available on Youtube channel: <https://lnkd.in/en8bAC3e>.

The material was delivered by Sandra Troia, educational expert at All Digital, who showcased all the learning scenario on GAMMA and general information about the INFINITE project through the concise presentation. After all the material was shared with participants through personalised email and disseminated on social media channel. Afterwards participants were invited to consult the scenarios themselves and fill in the post survey.

Material link
<https://gamma.app/docs/WEB-INFINITE-EN-language-n48rfysygzx77hj?mode=doc>

Social media post dissemination of material and recording: [\[link\]](#)

Course delivery for HE students

In accordance with the project proposal and the WP4 guidelines, All Digital implemented the blended capacity-building course for Higher Education (HE) students, based on the 12 learning scenarios for students developed collaboratively by the INFINITE consortium. For All Digital, as a pan European association representing members across Europe, the format described in the project proposal consisted of delivering two online webinars for its members.

Participant recruitment was carried out through All Digital members platform, social media dissemination and personalised emails. The banner and registration page was created as follows:

<https://events.teams.microsoft.com/event/75415ec7-ca1a-48f5-8897-16610c498807@8d8b2be4-0c2e-4b10-8d42-9ef10987a89f>

The invitation was addressed to All Digital Members that include adult education centres, digital training providers, NGOs, community organisations, libraries, social enterprises, and public bodies across Europe working on digital skills and inclusion.

Example of social media post invitation to register: [\[link\]](#)

Example of personalised email invitation :

[Dear Member,

I'm reaching out to invite you to Join us for the the second session of the "AI & Higher Education" Webinar series, organised within the framework of the INFINITE Project, taking place on June 12th from 14:00 to 15:00 (CET).

Following the success of our first Webinar on AI and Higher Education Faculty — the recording of which is available online at <https://youtu.be/qJOW4ECCEmg> — we are excited to continue the series with a focus on how AI can support students in real academic settings, offering practical insights and tools for more inclusive and effective learning experiences.

This interactive 60-minute webinar will explore how Artificial Intelligence can support student learning, development, and inclusion in higher education. We will continue showcasing the INFINITE platform and its AI Digital Hub, including a repository of Open Educational Resources (OERs) and real-life case studies demonstrating the use of AI in everyday academic settings.

To measure the impact of the session, learning outcomes will be evaluated through pre- and post-session tests.

 [Register](#)

here: <https://events.teams.microsoft.com/event/75415ec7-ca1a-48f5-8897-16610c498807@8d8b2be4-0c2e-4b10-8d42-9ef10987a89f>

Please feel free to share it within your network. Here is the [Linkedin post](#) for dissemination - we would greatly appreciate your support in spreading the word!]

In total, 15 participants attended the Webinar, and the video recording attracted an additional 21 views, while the initial registration rate was 31 participants. The participant group consisted mainly of academics and NGO representatives from across Europe. To reach students, the initiative was also shared through WhatsApp Erasmus groups.

The delivery of the blended course took place in June 2025 and was organised as an online learning experience, with participants given access to all materials after the webinar, including the recording, which was made available on the All Digital YouTube channel: <https://lnkd.in/e8aVG5-9>

The material was delivered by Sandra Troia, educational expert and project consultant at All Digital, who presented the INFINITE project through a concise overview and showcased the learning scenarios via an interactive GAMMA presentation, accessible via thin link. After all the material was shared with participants through personalised emails and disseminated on social media channel. Afterwards participants were invited to consult the scenarios themselves and fill in the post survey.

Combined Material of the Two Webinars:

<https://gamma.app/docs/WEB-INFINITE-EN-language-n48rfysygzx77hj?mode=doc>

Social media post dissemination of material and recording: [\[link\]](#)

Summary of participation / quantitative indicators

According to the project proposal and the WP4 guidelines, the target for the blended capacity-building courses was to involve 25 HE academics and 25 HE students, with complete pre- and post-assessment data for each group. However, for All Digital, the guidelines focused on involving its members without specifying a particular participant profile.

For the HE academics' activity, a total of 45 participants registered, 32 attended the live webinar, and the recording was viewed 46 times afterwards. Despite the strong interest and positive feedback, only a limited number of participants completed the pre test (19) and post test (10), even after multiple reminders. This can be explained by the fact that the activity was disseminated through All Digital's network, reaching members with

diverse professional profiles rather than a clearly defined academic cohort. As participation in the assessment was voluntary, many participants joined the webinar primarily for knowledge exchange and professional development purposes, rather than for formal evaluation.

For the HE students' activity, 31 participants registered, 15 attended the live session, and 21 viewed the webinar recording. Despite the strong interest and positive feedback received, only a limited number of participants completed the pre test (13) and post test (6), even after multiple reminders. This can be attributed to the fact that the activity was disseminated through All Digital's network, reaching members with diverse professional profiles rather than a clearly defined or formally enrolled student cohort. As participation in the assessment was voluntary, many participants engaged primarily for knowledge exchange and professional development purposes, rather than for evaluative or academic credit.

Overall, All Digital met the quantitative participation target, while completion rates for the pre- and post-assessment instruments were quite low despite all the efforts made.

Evaluation and assessment findings

In this section describe how the analysis of the surveys was done, data analysis methods and tools used

Results of course evaluation surveys

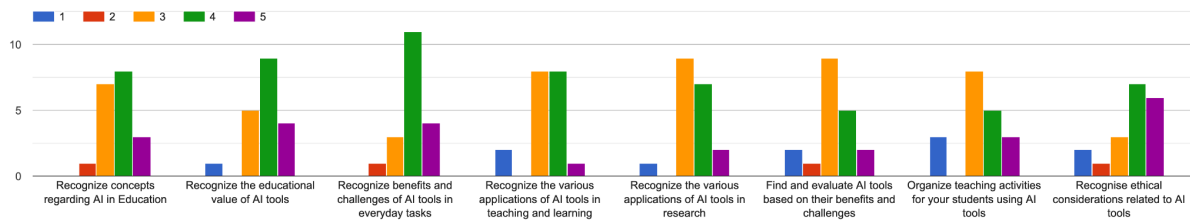
HE Academics

The pre- and post-course evaluation surveys were completed by 19 and 10 All Digital members respectively, who provided responses to a set of closed-ended items measuring knowledge and skills related to AI in education, as well as attitudes towards the use of AI in teaching, research, and assessment. All items were rated on a 5-point Likert scale.

The analysis below presents a descriptive comparison of pre- and post-test response patterns, with the aim of identifying shifts in self-reported confidence and attitudes following participation in the blended capacity-building course.

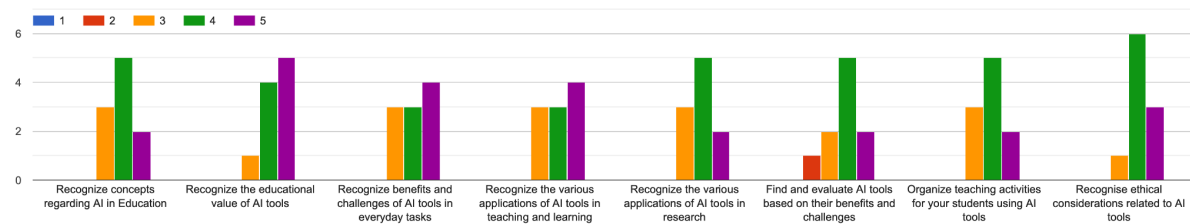
Knowledge and skills

How confident do you feel about the following? (1 for "Not at all" - 5 for "To a very large extent")



In the pre-test, HE academics' responses in the knowledge and skills category were predominantly concentrated around the upper to middle range of the scale. Participants reported high confidence in recognising benefits and challenges of AI tools in everyday tasks, concepts regarding AI in Education and the educational value of AI tools. While moderate confidence in recognising the various applications of AI tools in research, teaching and learning, in finding and evaluating AI tools based on their benefits and challenges, in organising teaching activities for students using AI tools. Ethical considerations related to AI were recognised as important, but confidence in addressing them pedagogically was often expressed at a moderate level.

How confident do you feel about the following? (1 for "Not at all" - 5 for "To a very large extent")

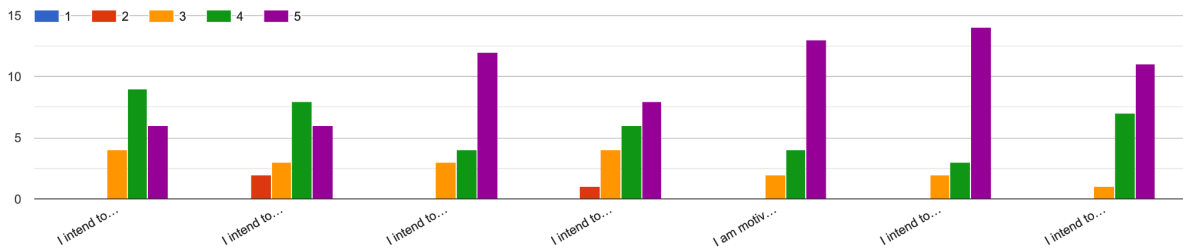


The post-test results show a clear shift towards the upper end of the Likert scale across all knowledge and skills items. Most participants reported increased confidence in recognising the educational value of AI tools, the benefits and challenges of their use in everyday tasks, and the various applications of AI in teaching and learning. Improvements were also observed in participants' ability to organise teaching activities using AI tools, as well as in finding and evaluating appropriate AI solutions.

Overall, post test responses clustered more consistently at higher confidence levels, indicating that the course strengthened HE academics' perceived competence in both conceptual understanding and practical pedagogical use of AI tools.

Attitudes towards AI use in higher education

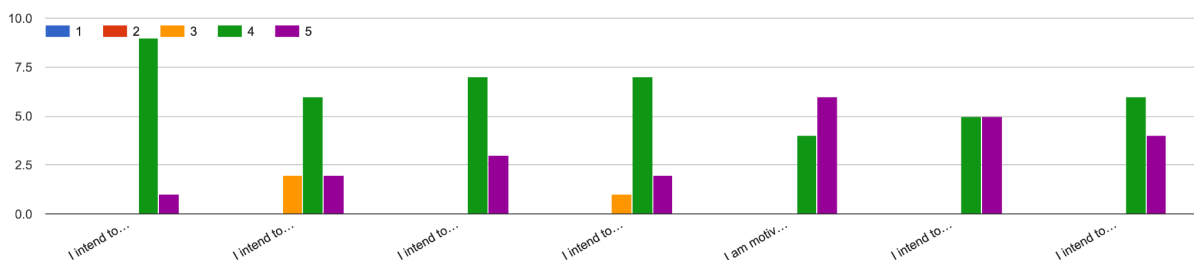
To what extent do you agree with the following statements? (1 for "Not at all" - 5 for "To a very large extent")



Responses in the pre-test are strongly skewed towards the higher end of the scale, indicating a high level of agreement across all statements. Most participants selected levels 4 and 5, particularly for statements related to the intention to seek further professional development opportunities to better understand and use AI in education, motivation to develop skills in using AI tools, to use AI in the research and assessments

The consistent concentration of responses at the highest agreement levels reflects a positive overall attitude towards AI integration, as well as confidence in its pedagogical potential when used responsibly.

To what extent do you agree with the following statements? (1 for "Not at all" - 5 for "To a very large extent")



In the post-test, attitudes remained positive, especially regarding continued professional development and responsible AI use. Lower and mid scale responses (levels 1–3) are almost entirely absent, suggesting reduced uncertainty and increased confidence following the learning activity. Overall, when compared to the previous results, this chart suggests that the course contributed to reinforcing positive perceptions and strengthening participants' alignment with the pedagogical value, relevance, and responsible use of AI in teaching, learning, and assessment. However, providing additional practical exercises, real-life case studies, and guided experimentation with AI tools would help participants move from level 4 to level 5 (strong conviction).

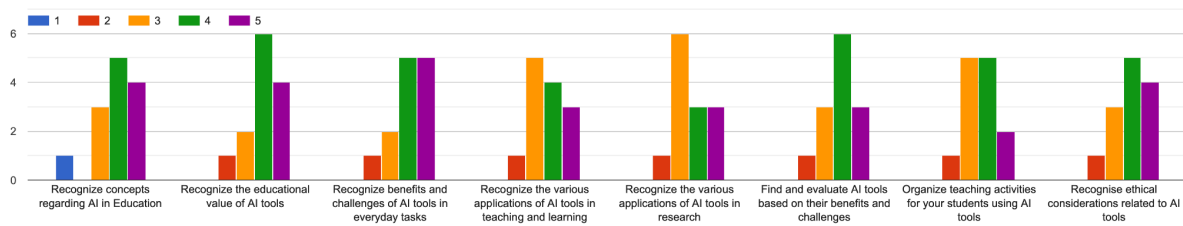
HE students

The pre- and post-course evaluation surveys were completed by 13 and 6 participants respectively, who provided responses to a set of closed-ended

items measuring knowledge and skills related to AI in education, as well as attitudes towards the use of AI in teaching, research, and assessment. All items were rated on a 5-point Likert scale. The analysis below presents a descriptive comparison of response patterns before and after participation in the blended capacity-building course.

Knowledge and skills

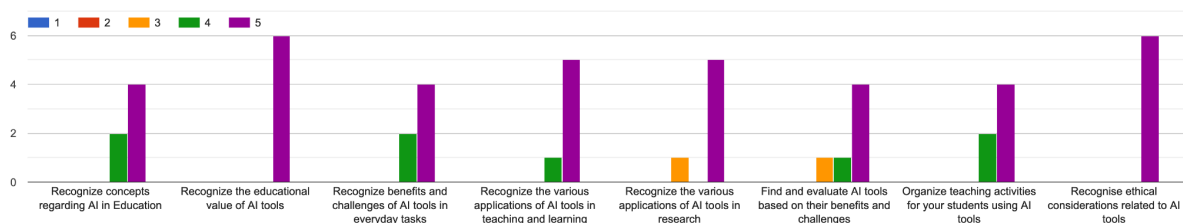
How confident do you feel about the following? (1 for "Not at all" - 5 for "To a very large extent")



In the pre-test, students' responses in the knowledge and skills category showed ratings concentrated in the upper range of the Likert scale. Students generally reported high confidence in recognising basic concepts related to AI in education and in understanding its educational value.

However, confidence was more moderate when it came to identifying the diverse applications of AI tools in teaching, learning, and research.

How confident do you feel about the following? (1 for "Not at all" - 5 for "To a very large extent")

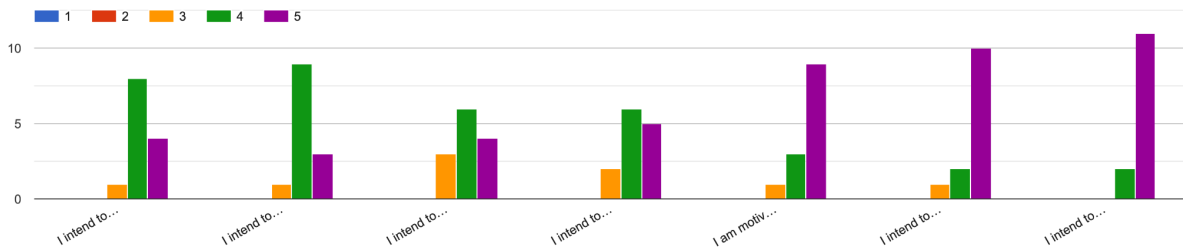


In the post-test, participants reported the strongest confidence in recognising ethical considerations related to AI and the educational value of AI, showing the most pronounced improvement, with 100% of responses at scale 5.

While moderate confidence in recognising the various applications of AI tools in research and in finding and evaluating AI tools based on their benefits and challenges.

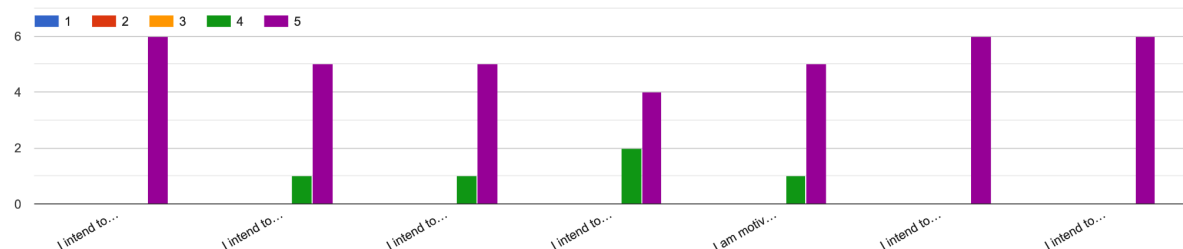
Attitudes towards AI use in higher education

To what extent do you agree with the following statements? (1 for "Not at all" - 5 for "To a very large extent")



In the pre-test, students demonstrated very positive attitudes towards AI, particularly in terms of motivation to develop practical AI skills and to further explore ethical considerations and applications in education.

To what extent do you agree with the following statements? (1 for "Not at all" - 5 for "To a very large extent")



In the post-tests, participants showed particularly high agreement with statements related to motivation to develop skills in using AI tools, interest in learning more about AI, recognition of the importance of ethical use of AI in education, perceived relevance of AI for their future professional development. These items received almost exclusively scale 5 ratings, reflecting a highly positive and proactive attitude.

Overall comparison

Overall, both HE academics and HE students entered the course with positive attitudes towards AI and moderate to high self-reported confidence in its educational value, while showing more uncertainty around practical applications. For HE academics, the post-test results indicate a clear shift towards higher confidence across all knowledge and skills areas, particularly in pedagogical use, tool selection, and application in teaching and learning, alongside reinforced positive attitudes towards responsible AI use. HE students also showed strong improvements in post test responses, especially regarding ethical considerations and the educational value of AI, reaching the highest confidence level, although confidence in practical application remained more moderate. Across both groups, attitudes towards AI were consistently very positive before and after the course, suggesting that the learning activities were particularly

effective in strengthening confidence and reducing uncertainty, while further hands on practice could support deeper practical mastery.

Challenges, lessons learned and recommendations

Challenges (operational/logistical/pedagogical/technical)

Overall, the implementation of WP4 by All Digital progressed smoothly and aligned with the objectives defined in the project proposal. Nevertheless, several challenges emerged during the delivery of the blended capacity-building courses.

While initial registrations exceeded project targets, ensuring the completion of both pre and post assessment questionnaires required multiple reminders and follow up communication. Similarly, for HE students, participation in AI related learning activities had to be balanced with existing academic commitments, requiring flexibility in scheduling and delivery formats.

While response rates for the pre and post test surveys were lower than anticipated, this should be interpreted in light of All Digital's role as a pan European network rather than a higher education institution. Participant engagement relied on voluntary participation through open calls and member dissemination, without formal academic incentives or mandatory requirements, particularly for students. At the same time, All Digital's extensive network and trusted position in the digital education ecosystem enabled the project to reach a diverse and international audience of HE academics, educators, and learners across multiple countries. This openness strengthened the relevance, transferability, and inclusiveness of the capacity building activities, demonstrating All Digital's added value in connecting education, practice, and policy beyond traditional academic settings.

Lessons learned from implementation

The implementation highlighted the importance of flexible engagement strategies when working through a non-academic network such as All Digital, where participation is voluntary and contexts vary across countries. While participants showed strong motivation and positive attitudes towards AI, the experience confirmed the need to combine conceptual input with practical, hands-on activities to strengthen confidence in real educational settings. Managing expectations around AI use required a continued focus on critical AI literacy, ethical reflection, and human

oversight. Finally, prioritising transferable competences over specific tools proved essential to ensure the long-term relevance and sustainability of the learning outcomes.

Recommendations for future implementations

Future WP4-related activities should continue to adopt flexible and context-sensitive engagement strategies, recognising that participation through a pan European network like All Digital is voluntary and takes place outside formal academic structures. This includes allowing adaptable timelines, multiple participation formats, and varied levels of engagement.

To improve evaluation response rates, future implementations should simplify and better integrate assessment activities into learning pathways, for example by clearly communicating their value, reducing survey length, and embedding reflective evaluation moments directly within learning sessions where possible.

Learning designs should systematically combine conceptual content with hands-on practice, ensuring that participants can translate awareness of AI concepts into confident application in teaching, learning, and research contexts. Guided experimentation, practical examples, and real-life scenarios should be prioritised.

Continued emphasis on critical AI literacy is recommended, particularly to address initial overestimations of AI capabilities and the search for fixed rules. Ethical reflection, verification practices, and human oversight should remain core elements across all activities.

Finally, future implementations should focus on developing transferable competences rather than tool-specific skills, enabling participants to adapt to the rapidly evolving AI landscape and ensuring the long-term relevance, scalability, and sustainability of the learning outcomes.

UCD (University College Dublin) National Report

Executive summary

This national report presents the implementation outcomes and evaluation findings of Work Package 4 (WP4) activities of the Erasmus+ INFINITE project in Ireland, led by University College Dublin (UCD). WP4 aimed to strengthen artificial intelligence (AI) capacity-building in higher education through blended courses delivered to both higher education (HE) academics and HE students, and through real-classroom teaching implementations integrating AI tools in discipline-specific contexts.

Across the Irish WP4 implementation, UCD delivered structured learning interventions to four main cohorts: (1) Computer Science (CS) HE students, (2) Language (LANG) HE students, (3) CS HE academics, and (4) LANG HE academics. Evaluation was conducted through pre- and post-course surveys using matched participant responses and statistical comparison methods, providing evidence of learning gains across AI knowledge, confidence, application skills, ethical awareness, and future intentions to integrate AI tools in academic work and teaching practice.

For **HE students**, AI-supported blended learning was implemented in two disciplinary contexts. In Computer Science, the course implementation was embedded within COMP47500 (Advanced Data Structures in Java) and focused on the integration of AI tools to support programming practices while learning complex data structure concepts such as Hash Tables and Maps. The intervention included blended engagement (online materials and hands-on practical work) and promoted AI tool use for code generation, debugging, and optimisation. In the Language context, a structured sequence of workshops was implemented within the Pre-Sessional English for Academic Purposes (EAP) Programme and LANG10620 (Academic Reading and Writing II), focusing on integrating generative AI (GenAI) tools into academic writing while strengthening academic integrity and critical AI literacy. Students engaged in comparative evaluation of human- and AI-generated writing and used rubric-based AI feedback to improve their draft research projects, with careful distinction between ChatGPT use (critical comparison) and Gemini use (institutionally supported and ethically safer for upload-based feedback workflows).

For **HE academics**, WP4 capacity-building courses focused on strengthening responsible and pedagogically sound AI integration for teaching, assessment, and research. In the CS academic cohort, the course

emphasised AI-generated feedback and scenario-based engagement, resulting in consistent improvements across all measured dimensions of AI literacy and teaching readiness. In the LANG academic cohort, the course similarly supported educators' ability to adopt AI-supported feedback strategies, while also capturing reflective insights on autonomy, institutional support needs, ethical concerns, and the importance of critical AI literacy.

Overall, the quantitative findings across cohorts indicate clear and positive learning outcomes. Matched pre–post comparisons showed strong gains in confidence with AI concepts, ability to evaluate AI tools, and intentions to apply AI in learning, teaching, assessment, and research. Notably, student cohorts demonstrated significant increases in intentions to use AI tools in academic work and greater awareness of ethical challenges, while academic cohorts showed strengthened readiness to integrate AI tools in pedagogical practice and professional development planning.

Qualitative feedback further reinforced these outcomes. Students reported that AI tools supported efficiency, understanding, and task completion, while also highlighting the importance of guidance to avoid over-reliance and to ensure responsible use. Educators' reflections emphasised both the pedagogical value of AI in supporting student autonomy and feedback literacy, and the continued need for institutional clarity, ethical safeguards, and reliable tool access for both staff and students.

Finally, the Irish WP4 implementation highlights several cross-cutting lessons and recommendations. Effective AI capacity building in higher education benefits from structured blended delivery, discipline-specific real classroom implementations, and strong ethical framing. Future iterations should expand opportunities for applied practice, strengthen institutional supports, and continue emphasising critical AI literacy and responsible integration of AI tools into higher education learning, teaching, assessment, and research contexts.

Implementation of the blended capacity-building courses

Course delivery for HE academics

In Ireland, University College Dublin (UCD) implemented WP4 blended capacity-building courses targeting higher education (HE) academics in both Computer Science (CS) and Language (LANG) disciplines. These courses aimed to strengthen educators' pedagogical capacity to integrate AI tools responsibly into teaching and assessment practices, while also supporting reflective and ethical engagement with AI-related opportunities and risks in higher education.

The overall design of the academic training aligned with WP4 objectives by combining structured input on AI literacy, practical scenario-based activities, and guided reflection on the use of AI-generated feedback in academic writing instruction. Academics engaged in hands-on tasks involving the generation, analysis, and critique of AI-produced rubric-based feedback, supporting their development of applied competence in evaluating AI outputs for educational use. These activities encouraged participants to consider how AI tools may complement teacher feedback, strengthen feedback literacy, and support learning design in a manner that remains human-centred and ethically grounded.

Across both academic cohorts, the course content emphasised key dimensions of AI capacity building, including recognition of AI concepts and applications in education, evaluation of AI tool benefits and limitations, readiness to adapt teaching practices to accommodate AI-related changes, and awareness of ethical challenges such as academic integrity, bias, and responsible professional practice. The use of practical learning scenarios was particularly important in ensuring that participants moved beyond general awareness of AI and toward actionable integration into teaching, assessment, and research contexts.

The WP4 implementation for HE academics was evaluated using pre- and post-course surveys with matched participant responses. In the CS academic cohort, 9 matched participants were included in the pre-post analysis, demonstrating substantial increases across all measured dimensions of confidence, intention to use AI, and motivation to continue professional development. In the LANG academic cohort, 16 matched participants contributed to the comparative analysis, and results similarly showed consistent gains, supported by an additional qualitative dataset of teacher

reflections that captured more nuanced perspectives on AI use in academic writing teaching.

Importantly, the teacher reflections gathered from LANG academics reinforced the value of supporting educators not only in AI tool use, but also in the development of critical AI literacy and institutional readiness. Reflections highlighted both enthusiasm for AI as a support for student autonomy and learning strategy development, and caution regarding ethical concerns and the need for clear institutional guidance and access to reliable tools for staff and students. These insights provide strong contextual evidence for future course improvements and scaling of WP4 activities at the national level.

Course delivery for HE students

In Ireland, UCD implemented WP4 blended capacity-building activities for higher education (HE) students through discipline-specific course integrations in Computer Science (CS) and Language (LANG) contexts. These student-focused interventions aimed to strengthen AI literacy, support responsible and effective use of AI tools for academic learning tasks, and promote critical awareness of ethical and practical implications of AI adoption in higher education.

Within the CS context, WP4 implementation was embedded in the undergraduate module **COMP47500 (Advanced Data Structures in Java)**. The learning focus combined advanced technical content (Hash Tables and Maps) with structured exposure to AI-supported programming practices. Students were introduced to AI tools that can support code development and problem solving, including DeepLearning4J, SpellBox, and Tabnine, with the aim of enhancing competence in using AI tools for code generation, debugging support, and solution optimisation. The intervention followed a blended format, where students were introduced to AI tools during a lecture session earlier in the week and were subsequently supported in applying them during a hands-on practical workshop session, complemented by materials and tasks hosted on UCD's Brightspace platform. This student implementation contributed approximately 6–8 hours toward the broader WP4 blended course delivery requirements.

Within the LANG context, WP4 implementation was delivered through the Pre-Sessional English for Academic Purposes (EAP) Programme and LANG10620 (Academic Reading and Writing II). These learning activities were designed to strengthen students' academic writing capabilities and

feedback literacy, while building responsible and critical AI literacy for academic practice. The intervention used two generative AI (GenAI) tools in complementary pedagogical roles: ChatGPT was utilised as a tool for critical comparison of human- and AI-generated writing, enabling structured reflection on writing quality, authorship, and academic integrity; Gemini was used to generate and evaluate rubric-based feedback on students' work-in-progress draft research projects. This separation between tools supported responsible use and reduced risks associated with uploading assessed work to public AI systems, given that institutional access to Gemini was available through UCD accounts. The LANG student intervention consisted of four sequential workshops, supported by blended follow-up tasks and online materials on Brightspace, and accounted for approximately 14 hours of structured learning contributing toward the 25-hour blended course target.

Across both student cohorts, WP4 blended delivery emphasised practical engagement with AI tools, critical evaluation of AI outputs, and explicit consideration of ethical dimensions of AI use in academic learning. Students were supported in developing confidence and strategies for integrating AI tools into learning and writing practices while maintaining academic integrity and reflective judgement, aligning with the broader WP4 objective of building transferable digital and AI competencies for higher education students.

Summary of participation / quantitative indicators

Across the WP4 national implementation in Ireland, UCD delivered blended AI capacity-building activities to both HE students and HE academics in Computer Science (CS) and Language (LANG) contexts. Participation indicators were collected through pre- and post-course surveys administered to each cohort. Unique anonymous participant codes were used to enable matched pre-post comparisons while maintaining confidentiality. The matched datasets form the core quantitative evidence base for evaluation of WP4 outcomes in Ireland.

For HE students, survey-based evaluation was completed for two blended implementations. In the CS student cohort (COMP47500), 26 participants completed both pre- and post-course surveys and were included in paired statistical analysis. In the LANG student cohort (Pre-Sessional EAP Programme and LANG10620), 55 participants provided matched pre- and post-course survey responses and were included in the paired analysis

dataset. Together, student implementations contributed a combined matched evaluation dataset of 81 HE students.

For HE academics, two cohorts were similarly evaluated using matched pre–post responses. In the CS academic cohort, 9 participants were matched across both surveys and included in the comparative analysis. In the LANG academic cohort, 16 participants were matched and included in the analysis, complemented by an additional qualitative teacher reflections dataset providing contextual insights. Together, academic implementations contributed a combined matched evaluation dataset of 25 HE academics.

Overall, across the four WP4 cohorts implemented at UCD, the national evaluation in Ireland includes a matched pre–post dataset of 106 participants (81 students and 25 academics), providing a robust quantitative foundation for examining changes in AI confidence, intentions, and ethical awareness resulting from WP4 blended course delivery and classroom implementations.

Real-classroom implementations from HE instructors

Selection of participants (instructors/students) and courses

Real-classroom implementations in Ireland were conducted at UCD through targeted integration of WP4 learning scenarios into existing higher education teaching contexts. The implementation strategy focused on selecting representative course environments across distinct disciplinary domains—Computer Science (CS) and Language (LANG)—to examine how AI tools and AI-supported feedback practices could be embedded into authentic teaching and learning activities in higher education.

The selection of student-facing implementations was based on two established course settings. In the CS domain, WP4 activities were integrated into the undergraduate module COMP47500 (Advanced Data Structures in Java), where students engaged with complex programming concepts and were supported in experimenting with AI-based coding tools during structured blended learning activities. In the LANG domain, WP4 activities were integrated into the Pre-Sessional English for Academic Purposes (EAP) Programme and LANG10620 (Academic Reading and Writing II), focusing on the responsible use of generative AI tools in academic writing development, feedback literacy, and ethical academic practice.

In parallel, instructor-facing capacity-building was conducted through blended training courses delivered to HE academics in both CS and LANG disciplines. Academic participants were selected as teaching staff engaged in academic writing instruction and feedback practices, enabling them to explore AI-supported feedback generation and evaluation through scenario-based pedagogical activities. The inclusion of both CS and LANG academic cohorts supported evaluation of AI integration across disciplinary contexts and enabled comparison of common needs in teaching, assessment, and ethical guidance.

Across these implementations, both students and instructors were selected as participants through their existing enrolment in courses or professional development activities at UCD. Pre- and post-course surveys using anonymous participant codes enabled paired evaluation of learning outcomes and attitudinal change, while qualitative inputs (including student open-ended responses and teacher reflections) provided additional contextual evidence regarding practical classroom experience, perceived challenges, and recommendations for future scaling.

Description of implementations

In Ireland, real-classroom WP4 implementations were delivered at UCD through discipline-specific integrations of AI tools into authentic learning and teaching activities. Two main classroom implementations were conducted: one within an undergraduate Computer Science module focused on programming and data structures, and one within academic writing programmes focused on Language learning, academic integrity, and ethical GenAI use.

Implementation 1: AI-supported programming in Computer Science (COMP47500)

The first implementation was delivered within COMP47500 (Advanced Data Structures in Java) and focused on strengthening student competence in implementing key data structures (Hash Tables and Maps) while also developing students' ability to meaningfully use AI tools to support programming work. Students were introduced to AI-powered development tools such as DeepLearning4J, SpellBox, and Tabnine, and encouraged to explore how such tools can assist with code generation, debugging, optimisation, and understanding alternative solution strategies.

The learning design followed a blended structure. Students were introduced to the AI tools during the earlier lecture session and subsequently engaged

in a hands-on workshop (lab-style session) where they applied these tools in support of implementing and testing Hash Tables and Maps in Java. This approach aligned with WP4 objectives by combining core disciplinary learning outcomes (advanced programming competence) with AI capacity building in a real learning environment.

Students' engagement included structured experimentation with AI tools alongside instructor-led guidance and follow-up materials hosted on UCD's Brightspace platform. The implementation contributed approximately 6–8 hours toward the wider WP4 blended course delivery target.

Survey-based evaluation and student feedback suggested that AI tools supported efficiency and problem solving, particularly in tackling challenges such as collision handling strategies and hash function design in Hash Table implementation.

Implementation 2: GenAI-supported academic writing and ethical AI literacy (Pre-sessional EAP + LANG10620)

The second implementation was delivered within the Pre-Sessional English for Academic Purposes (EAP) Programme and LANG10620 (Academic Reading and Writing II) and focused on integrating generative AI tools to enhance academic writing instruction and feedback literacy while promoting ethical and responsible practice.

The instructional sequence consisted of four structured workshops designed to support progressive development of critical AI literacy. Students first received explicit orientation to UCD's academic integrity policy and the ethical use of GenAI tools in academic writing contexts. A key learning activity involved structured comparison of a student-written essay with a ChatGPT-generated essay on the same topic, using rubric-based evaluation to promote critical engagement with writing quality, authorship, and limitations of AI-generated content. Further sessions focused on scenario-based discussion of ethical considerations, supporting students in understanding risks related to misuse, over-reliance, and responsible authorship.

A distinctive feature of the implementation was the complementary use of two GenAI tools: ChatGPT was used as a tool for critical comparison and analysis, while Gemini was used to generate rubric-based feedback on students' own draft research projects. Gemini was selected for upload-based feedback work because UCD provides institutional access, enabling a more secure and compliant workflow for handling students' draft materials. Under

this approach, students were not permitted to upload assessed work to public tools like ChatGPT, reducing risks related to data protection and academic integrity.

The intervention comprised approximately 14 hours of structured learning within the broader 25-hour blended delivery target, supported by online tasks and materials hosted via Brightspace. Survey results and qualitative feedback indicate that students developed increased confidence in applying GenAI tools in academic writing contexts, improved their ability to critically evaluate AI-generated feedback, and strengthened awareness of responsible and ethical AI use as part of academic practice.

Student participation / quantitative indicators

Student participation indicators for the real-classroom WP4 implementations in Ireland were collected through pre- and post-course survey instruments administered across the two student-facing implementations at UCD. Surveys were designed to measure changes in students' AI-related knowledge, confidence, intentions, and ethical awareness. Anonymous participant codes were used to match responses across pre- and post-surveys, enabling paired statistical analysis while maintaining confidentiality.

In the Computer Science classroom implementation within COMP47500 (Advanced Data Structures in Java), 26 students completed both pre- and post-course surveys and were included in the matched evaluation dataset. In the Language classroom implementation delivered within the Pre-Sessional EAP Programme and LANG10620 (Academic Reading and Writing II), a total of 55 students provided matched pre- and post-course survey responses and were included in paired analysis.

Overall, the real-classroom WP4 student implementations in Ireland contributed a combined matched dataset of 81 HE students, providing a robust quantitative basis for evaluating learning gains and perceived impact of AI-supported instructional approaches across both CS and LANG contexts.

Evaluation and assessment findings

Analysis of pre- and post-assessment surveys

In Ireland, the evaluation of WP4 blended capacity-building courses and real-classroom implementations was conducted through a structured pre- and post-assessment approach, using quantitative surveys supported by

qualitative open-ended feedback. Across student and academic cohorts at UCD, participants completed pre-course surveys prior to engagement with WP4 learning activities and post-course surveys following course completion, enabling measurement of changes in confidence, intentions, and perceptions related to AI use in higher education.

All survey instruments used a five-point Likert scale (1 = “Not at all”, 5 = “To a very large extent”) to measure AI-related confidence and attitudes across multiple dimensions, including recognition of AI concepts and applications in education, ability to find and evaluate AI tools, intentions to use AI tools in learning or teaching contexts, motivation to develop AI-related competencies, and awareness of ethical considerations such as academic integrity and responsible professional use.

To enable paired comparison while maintaining confidentiality, participants generated anonymous identification codes (e.g., using a combination of letters and digits) which allowed responses to be matched between pre- and post-surveys without revealing personal identity. Matched responses formed the basis for comparative statistical analysis across cohorts.

Quantitative analysis procedures included descriptive statistics (means, medians, and standard deviations), paired comparisons of pre- and post-course responses, and calculation of percentage changes to quantify the magnitude of observed improvements. Where relevant, survey items were grouped into broader categories (e.g., AI Knowledge, AI Application, AI Intentions, AI Development) to support interpretation of patterns across dimensions and to provide an aggregated view of change at cohort level.

In addition to quantitative evidence, post-course surveys included open-ended questions enabling participants to provide qualitative feedback on their learning experience, perceived benefits of AI tool use, implementation challenges, and ethical concerns. For the LANG HE academic cohort, a dedicated “teacher reflections” dataset provided further thematic insight into educators’ perspectives on AI integration, autonomy, institutional support, and academic integrity challenges.

Together, this mixed-method approach provided a robust evidence base for evaluating WP4 implementation outcomes in Ireland, allowing both statistical comparison of pre–post change and contextual interpretation through participant feedback and reflective commentary.

Results of course evaluation surveys

This section presents the key quantitative outcomes of WP4 blended capacity-building implementation in Ireland, based on matched pre–post survey data across HE student and HE academic cohorts at UCD. Results indicate consistent positive changes in AI-related confidence, application skills, ethical awareness, and intentions to integrate AI tools into higher education learning, teaching, assessment, and research practices.

HE Academics

Two cohorts of HE academics (CS and LANG) completed pre- and post-course surveys enabling paired comparison of learning outcomes.

In the CS HE academic cohort, matched analysis (n=9) demonstrated strong gains across all measured items. Post-course mean scores increased consistently, with an average improvement of approximately +0.96 points across matched dimensions, indicating substantial development in confidence, readiness to integrate AI tools into teaching and assessment, and motivation to continue professional development. Particularly strong improvements were observed in intentions to use AI in research and teaching-related contexts, as well as participants' ability to find and evaluate AI tools in relation to pedagogical benefits and limitations.

In the LANG HE academic cohort, matched analysis (n=16) showed moderate but consistent gains across the common survey items, with an average improvement of approximately +0.47 points. Participants entered the course with moderate-to-high baseline confidence and concluded with higher levels of perceived competence and intention to integrate AI into teaching and assessment. Notable improvements included increased recognition of AI applications in teaching and learning and strengthened motivation to further develop AI-related skills.

The following three figures (Figure 1, Figure 2 and Figure 3) present a visual summary of the pre–post survey outcomes for HE academics in Ireland.

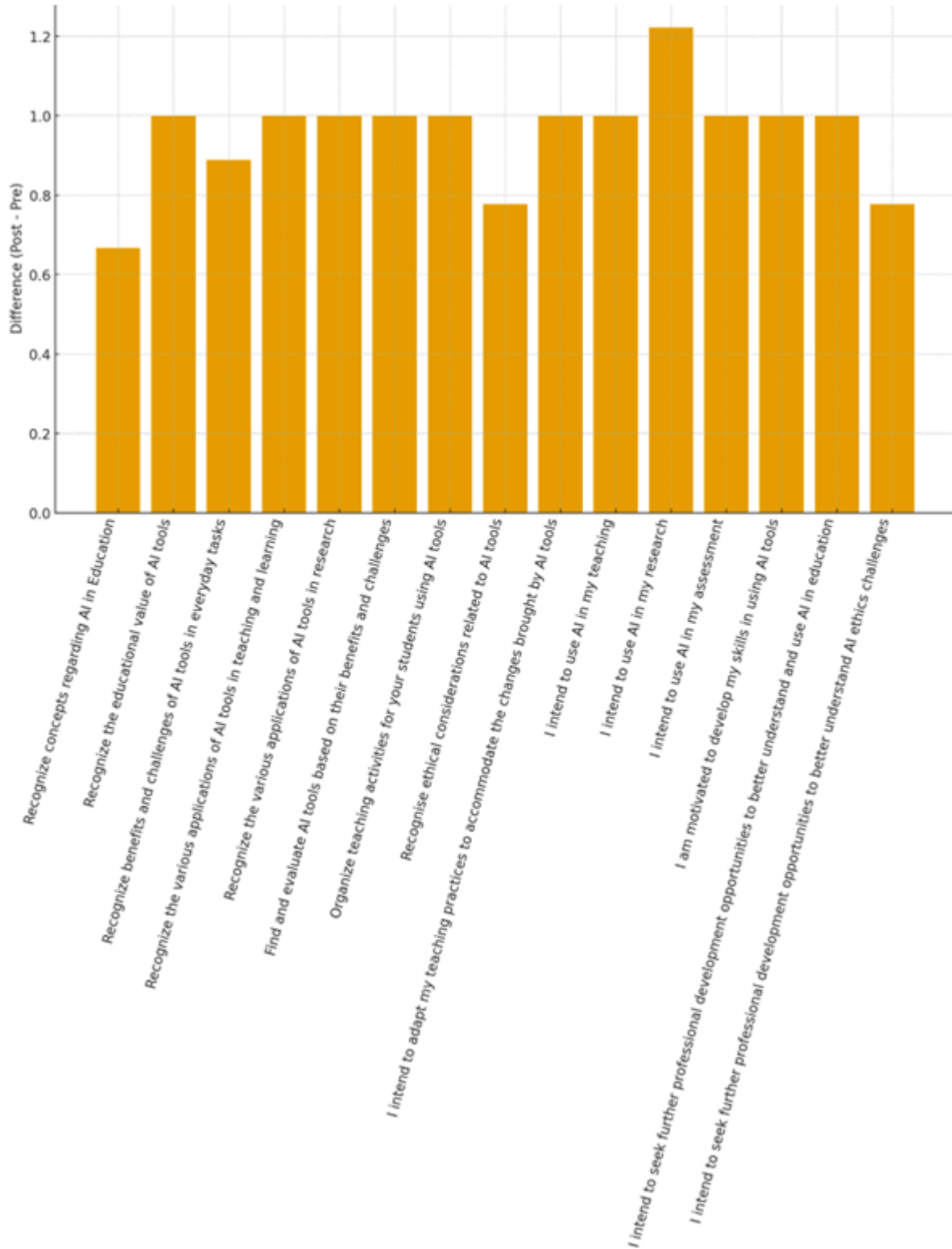


Figure 1: HE Academics (CS) – Net Differences (Post–Pre)

Results are reported separately for the Language (LANG) and Computer Science (CS) academic cohorts, highlighting changes in confidence, intentions, and motivation to integrate AI tools into teaching, assessment,

and research practice. Figure 1 emphasizes the size of the gains by showing only the differences in average scores. Figure 2 shows side-by-side averages for each survey item, making the before/after differences visible and Figure 3 emphasizes the size of the gains by showing only the differences in average scores. The CS academic cohort results show similarly strong positive trends, with clear improvements across all measured dimensions.

Across both academic cohorts, findings demonstrate that WP4 courses effectively supported educators in transitioning from general awareness of AI to applied readiness to incorporate AI tools and AI-generated feedback within teaching, assessment, and research practice, with continued emphasis on responsible and ethical integration.

Overall, HE academic results demonstrate that WP4 training strengthened educators' readiness to adopt AI-supported practices, while reinforcing ethical awareness and interest in continued professional development. These results indicate that the training supported practical pedagogical readiness while reinforcing ethical and reflective orientations.

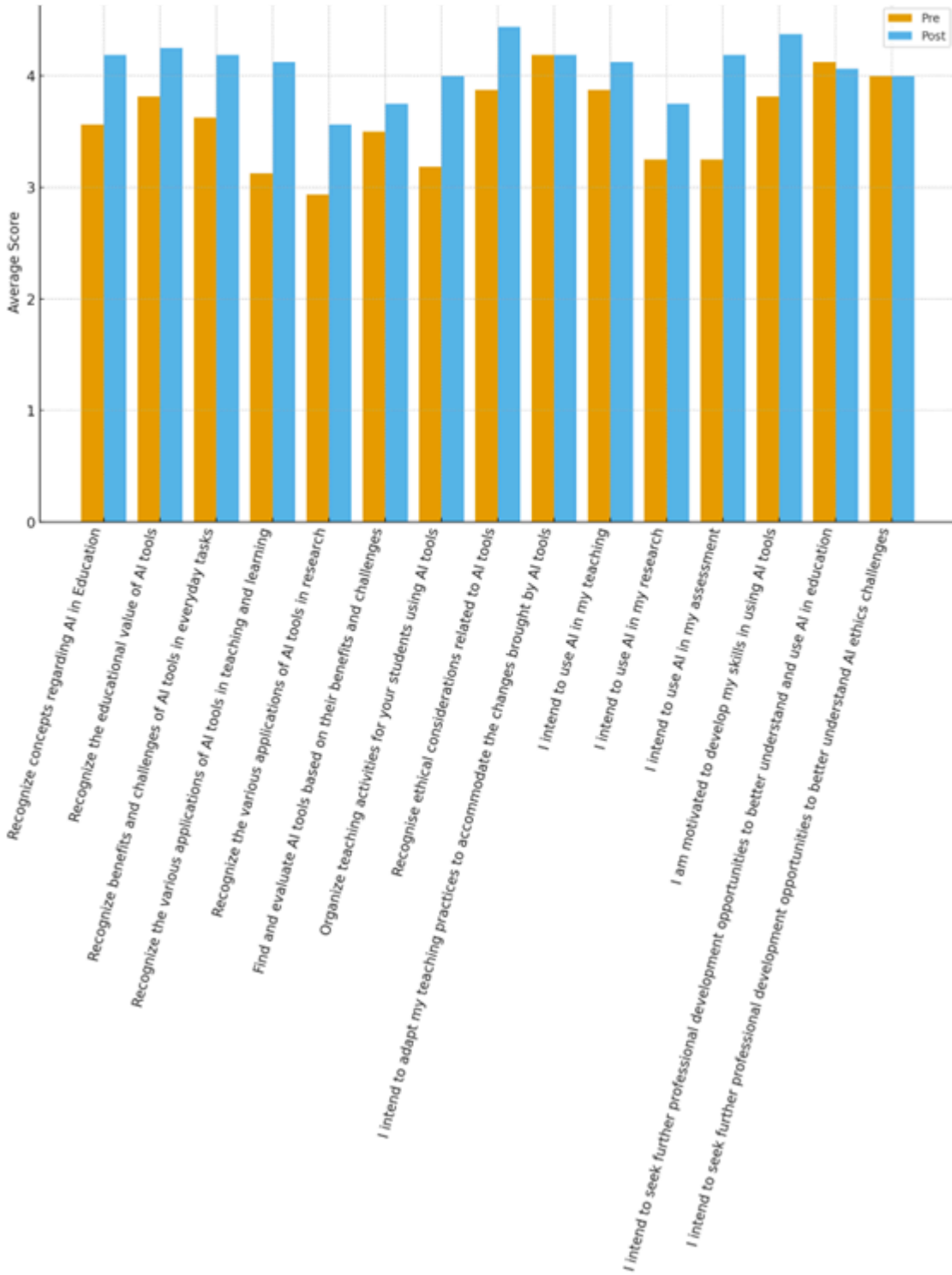


Figure 2: HE Academics (LANG) – Pre vs Post Survey Averages

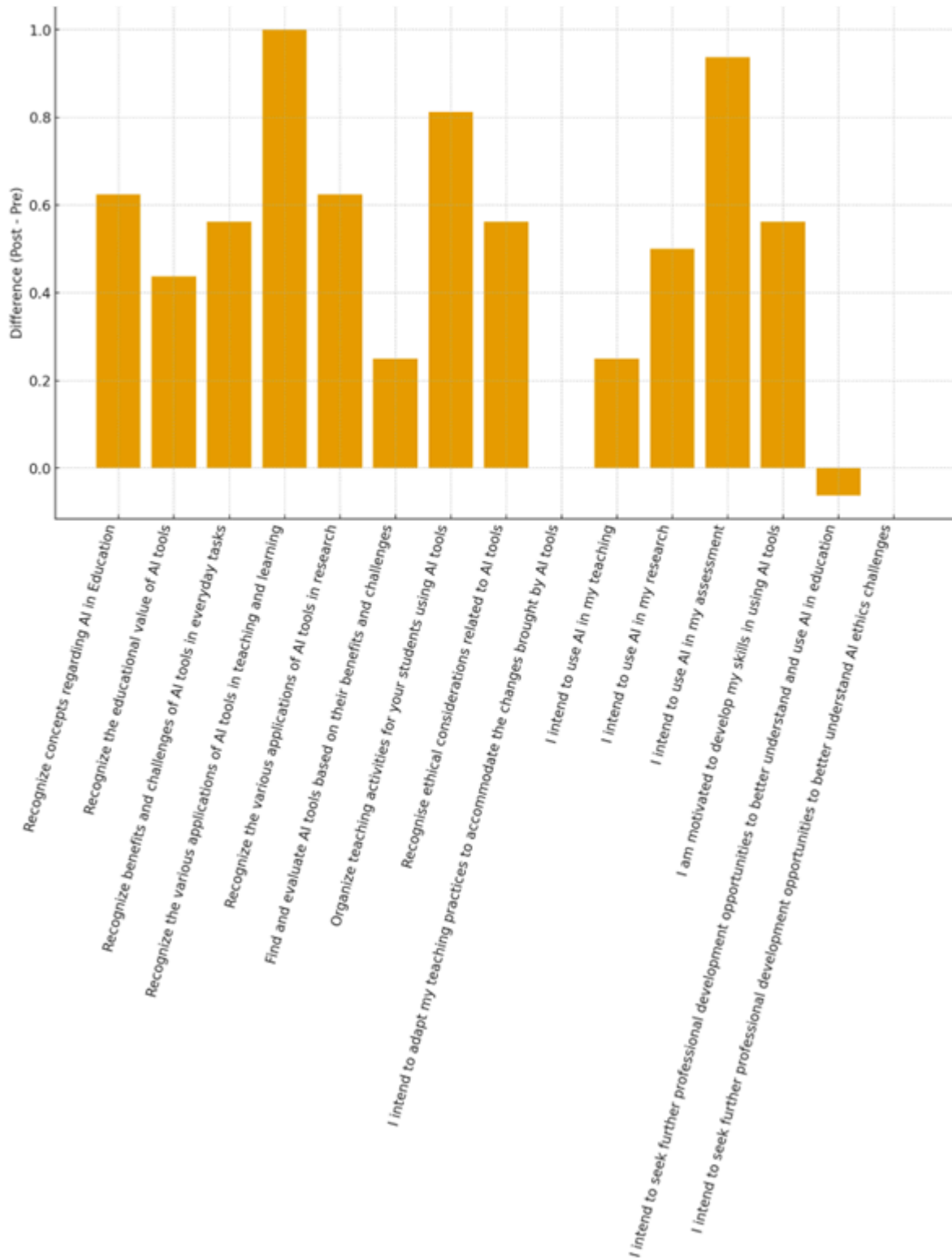


Figure 3: HE Academics (LANG) – Net Differences (Post–Pre)

HE students

Two student-facing WP4 implementations (CS and LANG) were evaluated using matched pre–post survey datasets.

In the CS student cohort within COMP47500 (matched n=26), paired statistical analysis revealed statistically significant improvements across all measured dimensions of AI-related confidence and intention. Pre–post comparisons showed increased confidence in recognising AI concepts in education, evaluating AI tools, and applying AI tools in learning and research contexts. Particularly substantial gains were observed in students' intentions to use AI in academic activities, including using AI in research and seeking further training related to AI ethics challenges. Workshop evaluation scores were also high, indicating strong student satisfaction with perceived relevance, quality, and likelihood of recommending the activity to peers.

In the LANG student cohort within the Pre-Sessional EAP Programme and LANG10620 (matched n=55), paired analysis demonstrated statistically significant improvement across all measured items. Improvements were observed in students' AI knowledge (recognising concepts, educational value, and benefits/challenges), AI application (finding and evaluating tools; organising learning), AI intentions (using AI in learning, essays, and research), and AI development (motivation and intentions to seek further training). Category analysis showed the most substantial gains in AI Application skills and AI Knowledge, reflecting the effectiveness of structured hands-on use of ChatGPT and Gemini in academic writing contexts. Combined workshop evaluation results were consistently high across criteria including relevance, quality, engagement, and recommendation intentions, demonstrating strong learner satisfaction with the delivery and value of the training.

The following figures summarise the pre–post survey outcomes and workshop evaluations for HE students, presented across two disciplinary implementations: Computer Science (COMP47500) and Language (Pre-Sessional EAP Programme and LANG10620). Visualisations show improvements across AI knowledge, application skills, intentions to use AI tools, and student satisfaction with the WP4 activities. Figures 4, 5 and Figure 6 summarise the pre–post survey outcomes and workshop evaluations for HE CS students cohort.

Pre vs Post Course Comparison by Category

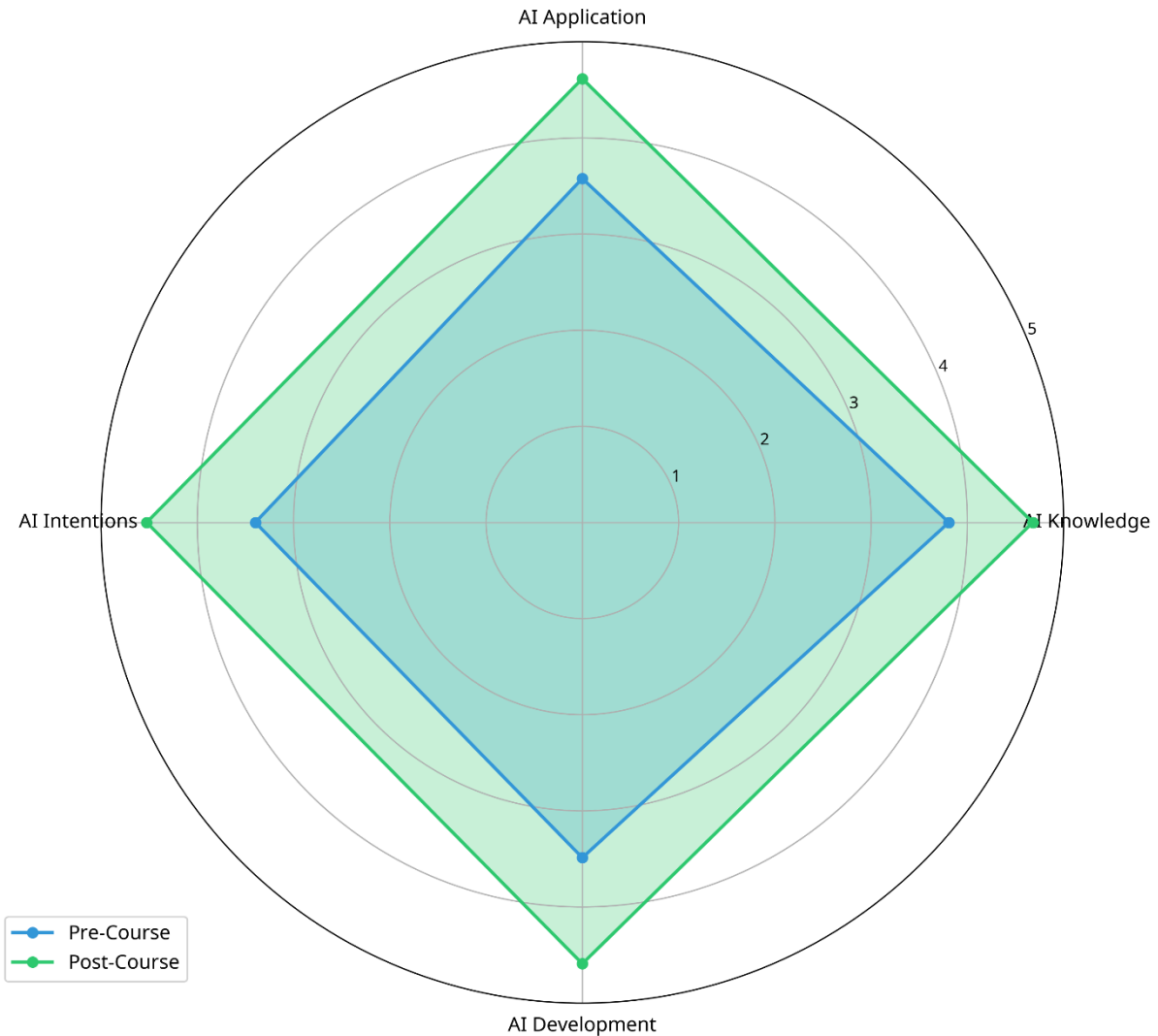


Figure 4: HE Students (CS) – Radar Chart: Pre vs Post Comparison by Category

Figure 5 clearly illustrates the positive impact of the course across various dimensions related to AI knowledge and intentions. The bar chart in below Figure 6 displays the average scores for each aspect of the workshop evaluation, based on a 1-5 scale. It provides a quick overview of student satisfaction with the workshop's effectiveness, relevance, interactivity, engagement, quality, and recommend ability.

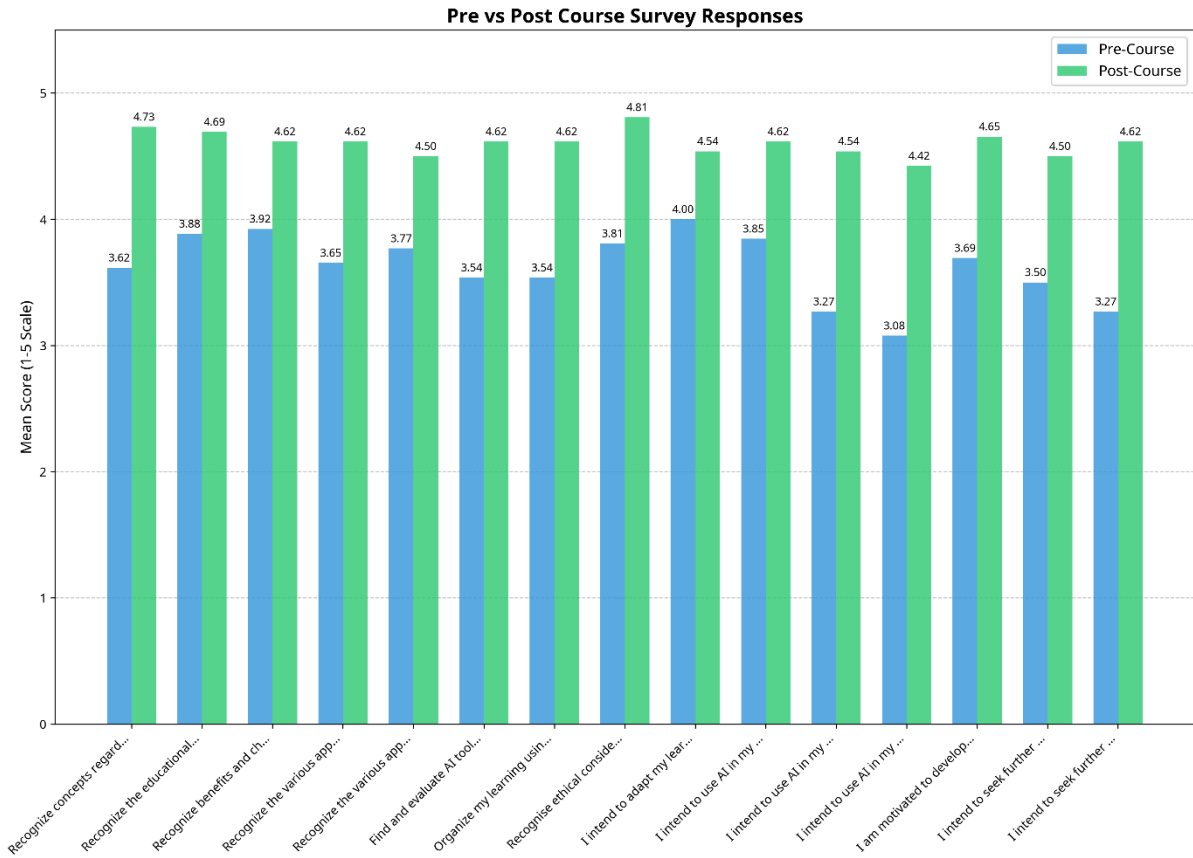


Figure 5: HE Students (CS) – Pre vs Post Course Survey Responses



Figure 6: HE Students (CS) – Workshop Evaluation Scores

The following Figures 7 and 8 present the corresponding results for the LANG student cohort, reflecting the impact of structured GenAI-supported academic writing workshops. Figure 7 visually compares the average pre-course and post-course scores across four key categories (AI Knowledge, Application, Intentions, Development). It highlights the overall improvement and the areas with the most significant gains after the course. The radar chart clearly demonstrates that while improvements occurred across all categories, the most substantial gains were in AI Application skills, followed by AI Knowledge.

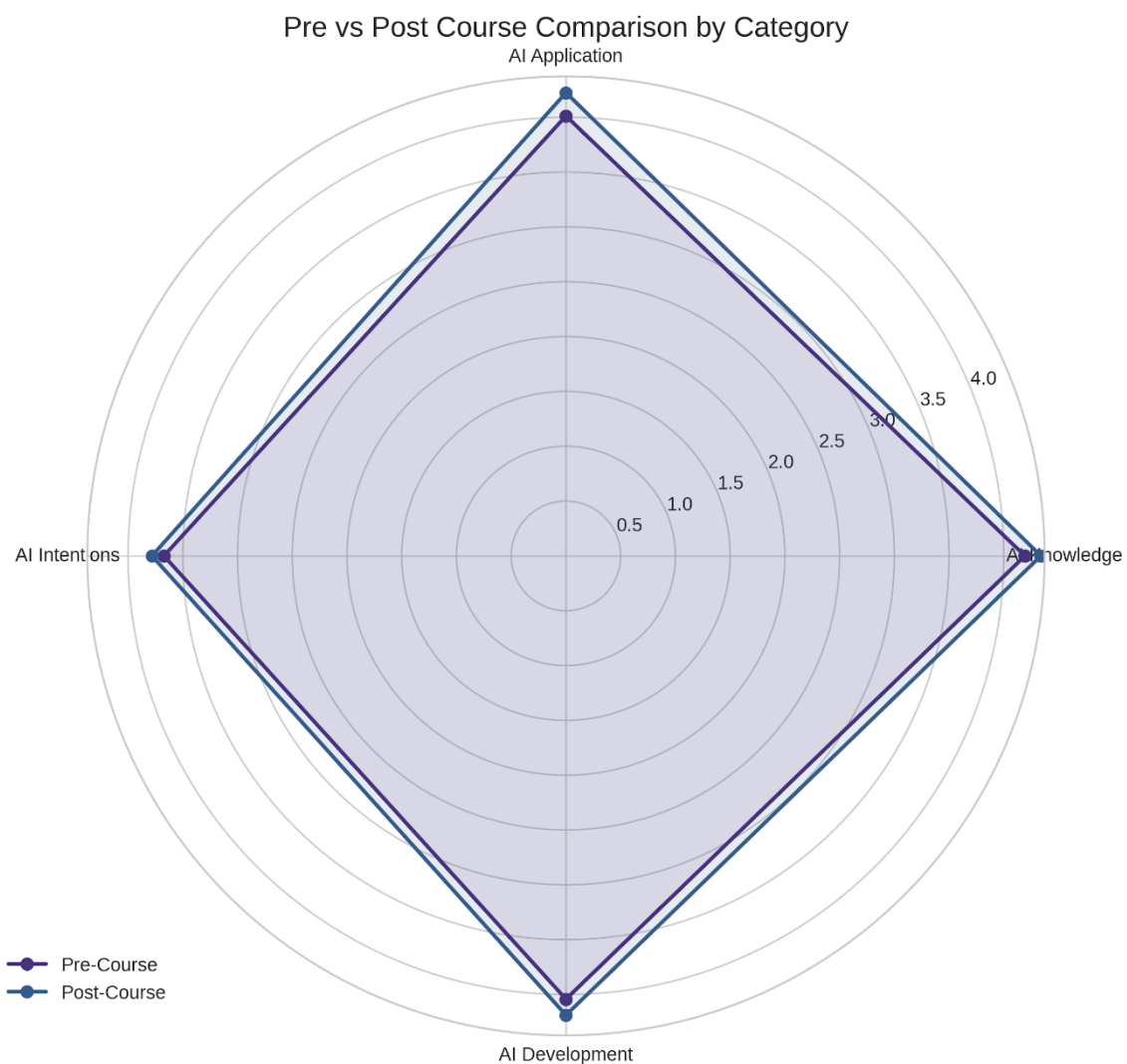


Figure 7: HE Students (LANG) – Radar Chart: Pre vs Post Comparison by Category

This bar chart (Figure 8) displays the average scores for each aspect of the workshop evaluation, based on a 1-5 scale. It provides a quick overview of

student satisfaction with the workshop's effectiveness, relevance, interactivity, engagement, quality, and recommend ability. The consistently high scores across all dimensions, particularly for relevance to studies and recommendation to colleagues, indicate strong student satisfaction with the course.

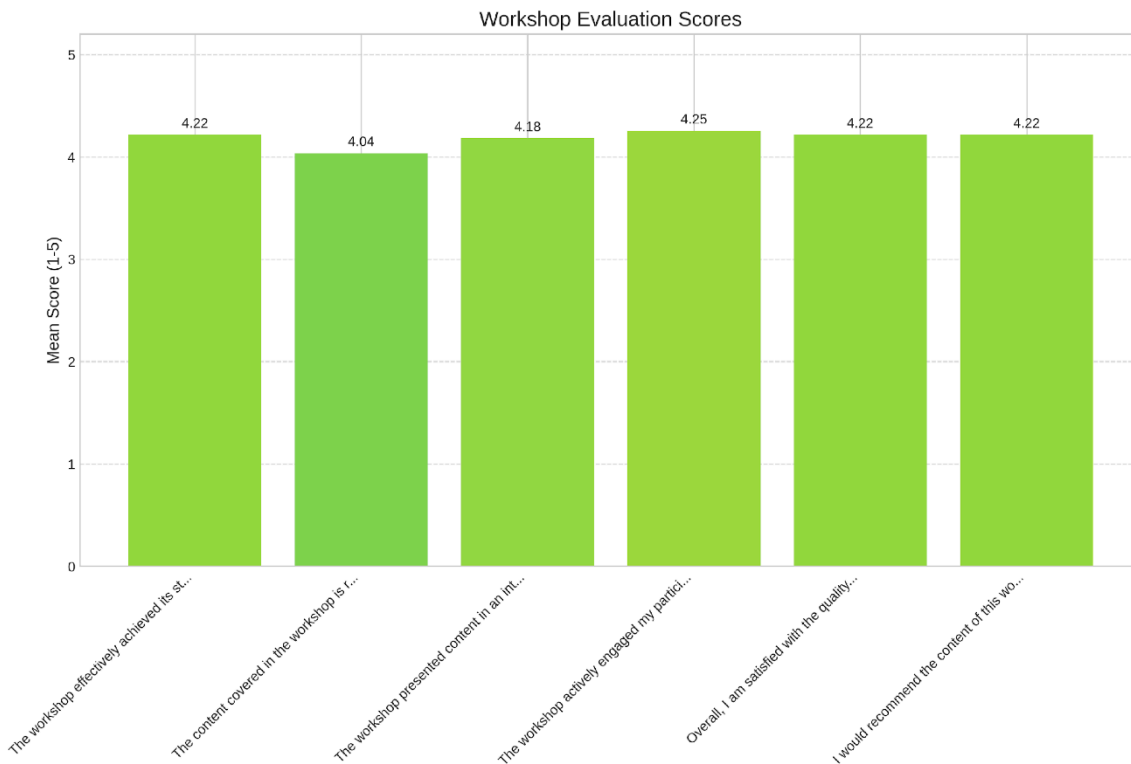


Figure 8: HE Students (LANG) – Workshop Evaluation Scores

Overall, student evaluation results confirm that WP4 learning interventions in Ireland strengthened students' AI literacy and confidence, supported ethically grounded engagement with AI tools, and increased readiness to integrate AI into discipline-specific academic tasks such as programming and academic writing.

Feedback from classroom implementations

Qualitative feedback collected through open-ended survey responses and teacher reflections provided additional insight into how WP4 activities were experienced in real classroom contexts at UCD. Overall, qualitative findings supported the quantitative results, indicating that both students and educators perceived clear benefits from AI-integrated learning scenarios, while also identifying ethical considerations and practical support needs for sustainable adoption.

Feedback from HE Academics/Instructors

Teacher reflections gathered from the LANG HE academic cohort highlighted that educators viewed AI tools as potentially valuable supports for developing student autonomy, strategy-based learning, and feedback literacy. Educators noted that AI feedback can guide students effectively when students are trained to interact with AI tools critically and with purposeful prompting. This reinforces the importance of explicitly teaching "how to use AI well" rather than treating AI outputs as automatically reliable.

At the same time, educators raised strong ethical concerns related to academic integrity, authorship, and responsible use. Reflections demonstrated a clear awareness of risks such as misuse, over-reliance, and the need for transparent boundaries around acceptable AI use in academic writing processes. A recurring theme was the importance of developing critical AI literacy as essential training for both educators and students, including understanding model limitations, bias, and the nature of training data.

Finally, academic feedback highlighted the need for stronger institutional support, such as access to reliable approved AI tools and clear guidance for staff and students. Educators identified institutional clarity and tool provision as key enablers for sustained implementation of AI-supported teaching and feedback practices.

Feedback from students

Student qualitative feedback across both CS and LANG implementations was overwhelmingly positive, with many students reporting increased confidence, improved task completion, and clearer understanding of both the subject content and the role AI tools can play in supporting learning.

In the CS implementation (COMP47500), students highlighted that AI tools were particularly useful for supporting programming practice, including generating code more efficiently, debugging complex issues, and exploring solution strategies for challenging concepts such as collision handling and hash function design in Hash Table implementations. These responses suggest that AI-supported development tools can strengthen learning outcomes when integrated as part of a guided instructional design and aligned with course learning goals.

In the LANG implementation (Pre-Sessional EAP Programme and LANG10620), students emphasised that the workshops helped them better understand academic writing structure, strengthen critical evaluation skills,

and develop confidence in using GenAI tools responsibly and effectively for writing-related tasks. Students valued the interactive, discussion-based format and reported that the training enhanced their awareness of ethical considerations and academic integrity expectations when using GenAI tools in higher education contexts.

Across both student cohorts, feedback indicated that practical, hands-on exposure to AI tools was effective in building not only skills and confidence, but also motivation to explore AI use further in future academic work, while recognising the importance of responsible and ethical engagement.

Challenges, lessons learned and recommendations

Challenges (operational/logistical/pedagogical/technical)

The WP4 implementation in Ireland at UCD revealed several challenges that are relevant for scaling AI capacity-building initiatives in higher education. These challenges span operational, pedagogical, ethical, and institutional dimensions and reflect the realities of implementing AI-supported learning in real classroom contexts.

A key challenge concerns **ethical and academic integrity risks**, particularly in learning contexts involving generative AI tools and academic writing. Both student and academic cohorts highlighted the importance of ensuring that AI integration does not encourage uncritical copying, misuse, or over-reliance, and that learners understand responsible authorship and ethical boundaries. Teacher reflections in particular emphasised concerns related to academic integrity and the need to guide students in distinguishing appropriate support from misconduct when using AI tools.

A closely related challenge is **data privacy and safe tool use**, especially when students may need to upload drafts or learning artefacts into AI systems. In the UCD language-focused implementation, this concern required careful tool selection and workflow design, with institutional access to Gemini enabling a safer approach for upload-based feedback tasks, while public tools such as ChatGPT were restricted from use with assessed work. This highlights the importance of institutionally supported AI tools and clear guidance on what kinds of materials may be used with different systems.

A further challenge involves **institutional clarity and support structures** for staff and students. Educators expressed the need for consistent institutional

guidance, including access to reliable AI tools approved for teaching and learning, and clearer frameworks to support responsible adoption. Without institutional support, educators may face uncertainty regarding acceptable use policies, assessment implications, and the long-term sustainability of AI-integrated practices.

From a pedagogical perspective, an ongoing challenge is **ensuring that AI tools are integrated in ways that strengthen learning rather than bypassing it**. Effective implementation requires structured scaffolding so that learners use AI tools to support reasoning, evaluation, and improvement rather than replacing authentic engagement with learning tasks. This is particularly important in both programming and academic writing contexts, where skill development depends on iterative practice and reflection.

Finally, the implementation underscored the challenge of **balancing time, workload, and participation within blended learning delivery**. While WP4 activities were successfully embedded into existing course structures, time constraints remain a limiting factor for extending hands-on practice, increasing interactive elements, and supporting deeper follow-up activities. This suggests that future scaling may require dedicated scheduling and additional support resources to maximise learning impact across cohorts.

Lessons learned from implementation

The WP4 implementation in Ireland at UCD generated several key lessons regarding effective approaches to AI capacity building in higher education. Overall, findings confirm that blended, scenario-based, and hands-on learning designs are highly effective for strengthening AI literacy and supporting responsible adoption of AI tools by both students and academics.

A central lesson learned is that **practical engagement with AI tools produces stronger learning gains than abstract discussion alone**. Across both student cohorts and academic cohorts, participants demonstrated increased confidence and intention to use AI tools when they were provided with structured opportunities to experiment with tools in authentic disciplinary tasks, such as programming labs in Computer Science and academic writing feedback processes in Language contexts.

A second lesson concerns the value of **discipline-specific and purpose-driven tool integration**. The CS implementation showed that AI tools can meaningfully support programming workflows (e.g., code generation, debugging, optimisation) when aligned with technical

learning outcomes and guided by instructor support. Similarly, the LANG implementation demonstrated that GenAI tools can support academic writing development when positioned within a clear pedagogical framework that emphasises critical comparison, feedback literacy, and ethical academic practice. These findings suggest that AI capacity building is most effective when learners are trained not only in tool use, but also in how tool outputs should be evaluated within the conventions of the discipline.

A further important lesson learned is that **tool complementarity and workflow design matter for ethical and safe adoption**. In the LANG student implementation, the structured separation of ChatGPT use (critical comparison and discussion) and Gemini use (institutional access for rubric-based feedback on student drafts) provided a practical model for balancing skill development with responsible data handling and academic integrity safeguards. This approach highlights the importance of aligning tool selection with institutional policy, privacy considerations, and the type of learner artefact involved.

Another lesson learned is that **ethical awareness must be embedded explicitly rather than treated as optional**. Across cohorts, participants demonstrated improvements in recognising ethical considerations related to AI tools and expressed interest in further training related to AI ethics challenges. Teacher reflections also reinforced the need for continued emphasis on academic integrity, transparency, and critical understanding of AI systems and their limitations, including concerns about over-reliance and the nature of training data.

Finally, WP4 implementation in Ireland demonstrated that **capacity building should be understood as an ongoing process rather than a one-off intervention**. Improvements in motivation to develop AI-related skills and intentions to seek further professional development were observed across both student and academic cohorts, indicating that training can serve as a catalyst for continued growth when supported by institutional structures and opportunities for follow-up practice.

Recommendations for future implementations

Based on the evidence collected through WP4 implementation in Ireland at UCD, several recommendations are proposed to support future delivery, scaling, and sustainability of AI capacity-building activities in higher education. These recommendations reflect both the quantitative

outcomes and the qualitative feedback gathered from students and academics across Computer Science (CS) and Language (LANG) contexts.

1. Expand applied and discipline-specific AI learning scenarios.

Future WP4 implementations should continue to embed AI-supported activities in authentic disciplinary tasks. In CS contexts, this includes further integration of AI tools into programming workflows, including debugging, optimisation, and design reasoning. In LANG and academic writing contexts, it includes continued structured use of GenAI tools to support drafting, evaluation, and feedback literacy. Expanding the range of discipline-relevant use cases will strengthen transferability and sustained adoption.

2. Strengthen ethical and academic integrity training as a core course component.

Ethical considerations should remain central to AI capacity-building delivery. Future training should include explicit discussion of academic integrity, responsible authorship, bias, transparency, and appropriate use boundaries. Scenario-based ethical dilemmas and policy-oriented discussions can help educators and students build practical judgement rather than relying on general principles alone.

3. Provide institutionally supported, reliable AI tools and clear guidance for safe use.

Scaling AI capacity building requires institutional support structures that reduce uncertainty for staff and students. This includes access to reliable tools approved for teaching and learning use, as well as guidance on data protection, uploading of student work, and acceptable use in coursework and assessment. The Irish implementation shows that institutional access to tools (such as Gemini) can support safer workflows for feedback-based learning activities.

4. Extend opportunities for interactive learning and sustained engagement.

Although workshop evaluation outcomes were highly positive, future implementations may benefit from expanding interactive elements, increasing peer discussion opportunities, and providing additional time for guided hands-on practice. Follow-up activities and structured reflection

tasks can reinforce learning outcomes and support deeper integration of AI tools into ongoing academic practice.

5. Implement longitudinal and tool-specific evaluation strategies.

To strengthen evidence for WP4 outcomes, future implementations should consider follow-up evaluations that capture longer-term retention of skills and sustained AI tool adoption beyond immediate course completion. Where multiple tools are used, tool-specific analysis may provide clearer insight into which tools are most effective for particular educational purposes (e.g., critical comparison vs rubric-based feedback)

6. Support communities of practice and ongoing educator development.

Given strong increases in educators' motivation and intentions to continue professional development, future efforts should support communities of practice where staff can share learning designs, assessment strategies, prompts, and AI-supported materials. Continued training and peer exchange can help sustain WP4 outcomes and scale good practices across

RUG (University of Groningen) National Report

Executive summary

This national report presents the implementation and evaluation of Work Package 4 (WP4) activities of the Erasmus+ INFINITE project at the University of Groningen (RUG), focused on strengthening artificial intelligence (AI) capacity-building in higher education through blended courses and real-classroom implementations.

At RUG, the WP4 activities targeted both higher education (HE) academics and HE students through structured learning interventions built around real-case scenarios. The courses combined onsite workshops with asynchronous online learning via Brightspace and emphasized hands-on engagement with AI tools alongside critical reflection. For academics, the training focused on integrating AI into course design and assessment, encouraging participants to evaluate AI outputs, rethink assessment strategies, and align AI use with pedagogical goals. For students, the course addressed the use of AI across the research process, including literature review, data analysis, and academic writing, while placing strong emphasis on ethical issues such as bias, hallucinations, and data privacy.

Participation targets were successfully achieved, with 25 academics and 37 students completing the courses. Following the training, two academics implemented AI-integrated teaching in their own contexts: one developed a comprehensive PhD-level course on AI literacy combining teaching and research applications, while another delivered a seminar for pre-service teachers focused on AI-supported lesson design and research practices. These implementations demonstrated the flexibility and applicability of the training materials across different educational settings.

Evaluation was conducted באמצעות pre- and post-course surveys, showing clear improvements across both cohorts. Prior to the intervention, participants reported low to moderate confidence in their AI-related knowledge and skills. Post-intervention results showed a strong shift toward higher confidence levels, particularly in understanding AI applications and ethical considerations. Attitudinal changes were also observed, with increased motivation to further develop AI competencies, although some hesitation remained regarding the practical use of AI in assessment and research contexts.

Qualitative findings reinforced these results. Participants highlighted increased awareness of both the opportunities and limitations of AI, with

ethical considerations emerging as a central theme. The scenario-based and interactive format was perceived as particularly effective in supporting engagement and enabling immediate application of knowledge. Additionally, the training prompted broader reflection on academic practices, including teaching approaches, research integrity, and responsible technology use.

The implementation also revealed several challenges. Recruitment required significant effort due to time constraints among academics and students. While the blended format provided flexibility, onsite sessions were consistently perceived as more engaging, indicating a trade-off between accessibility and depth of interaction. Participants also expressed uncertainty due to the lack of clear institutional guidelines on AI use, and some faced barriers related to privacy concerns when using external AI tools.

Overall, the RUG WP4 implementation demonstrates strong positive outcomes in developing AI literacy and critical engagement among both students and educators. The findings suggest that effective AI capacity-building in higher education benefits from scenario-based, practice-oriented learning combined with explicit attention to ethical and pedagogical dimensions. Future implementations should further align training with participants' everyday academic practices, strengthen institutional guidance, and address practical barriers to AI tool adoption to enhance scalability and impact.

Implementation of the blended capacity-building courses

Course delivery for HE academics

In line with the project proposal and the guidelines prepared by the WP4 leaders, RUG first contributed to the design of two real-case scenarios that became part of the 12 scenarios included in the blended course for HE academics. The first scenario, “Exploring Limits and Possibilities in Course Design with AI”, introduces instructors to the potential and limitations of AI tools in lesson planning through an inquiry-based and interactive approach. Centred on the case of Sarah, a lecturer redesigning a challenging Biochemistry course, participants examine how AI can support planning, identify common weaknesses in AI-generated materials, and compare these with evidence-based design principles. The scenario aims to strengthen instructors' critical AI literacy and foster more intentional, pedagogically grounded use of AI in course design.

The second scenario, “Rethinking Assessment: A Formative Approach to AI Integration”, supports instructors in re-evaluating assessment and feedback practices in AI-rich learning environments. Through the case of Sofie, a Physics lecturer dealing with students who use AI to complete tutorial tasks, participants explore how AI reshapes traditional assessment, feedback, and academic integrity. The workshop combines guided discussion, hands-on activities, and analysis of AI-generated responses to help instructors align assessment tasks with learning objectives, evaluate AI feedback, and design more process-oriented, formative activities.

Once all 12 scenarios for academics (from RUG and partner institutions) were finalised, we proceeded to adapt and implement the course at RUG. We opted for a blended format, combining onsite synchronous workshops and online asynchronous learning to accommodate the schedules and needs of academic staff. The two scenarios developed by RUG were delivered onsite and synchronously, allowing for direct interaction, collaborative work, and in-depth discussion. During these sessions, we also provided detailed guidance on how participants could engage with the remaining scenarios independently.

For the online component, all materials were uploaded and organised in Brightspace, RUG’s institutional learning platform. All participating academics were enrolled in the course space and received a walkthrough of the platform during the onsite session. The Brightspace environment also included clear step-by-step guidance to support autonomous engagement with the asynchronous content.

To recruit participants, we employed several strategies. A promotional poster was designed to announce the implementation of the learning scenarios and was distributed across different faculties at RUG by contacting key staff members who could further disseminate the information. In addition, we used the Centre for Learning and Teaching’s network of contacts and sent targeted emails to stakeholders who might be interested in joining the course. These actions enabled us to reach the sample size agreed upon in the project proposal. The final group consisted of faculty members from a wide range of disciplines, including science and engineering, business and economics, humanities, and other academic areas.

The onsite component of the learning scenarios was delivered on 2 June 2025. The remainder of June, as well as July and August, was dedicated to the asynchronous online component. This schedule was intentionally

chosen to accommodate the availability of academic staff, as most participants had completed or were close to completing their teaching responsibilities for the academic year.

Regarding the resources used, the primary tool for course delivery was the Brightspace platform. For the onsite implementation, we reserved classrooms with flexible furniture to facilitate group work, discussion, and interaction during the sessions. Finally, the AI tools included in the learning scenarios were actively used during both the synchronous and asynchronous components of the course.

Overall, the course implementation proceeded as planned and met all requirements established in WP4 regarding content delivery, participation, format, and resources.

Course delivery for HE students

In accordance with the project proposal and the WP4 guidelines, RUG developed two real-case scenarios that were integrated into the set of 12 scenarios forming the blended course for HE students. The first scenario, “AI tools for literature management, data analysis and communicating research”, introduces undergraduate students to a variety of AI tools commonly used throughout the research cycle. Framed through the case of Marta, a Master’s student, the scenario encourages students to experiment with literature databases, large language models, and specialised AI platforms. By exploring these tools hands-on, learners compare their advantages and limitations, consider possible ethical implications, and reflect on how each tool might influence the quality and integrity of academic work.

The second scenario, “Ethical dilemmas around using AI systems”, focuses on developing students’ awareness of the ethical and societal challenges associated with AI use in academic contexts. The scenario follows Robert, a third-year Genetics student who unintentionally misuses several AI tools during his final project. Through six structured cases, students explore key issues such as hallucinations, biased outputs, privacy and consent, environmental impact, and the sociocultural inequalities that AI systems can reinforce. Working through these dilemmas using an inquiry-based approach allows students to recognise both the potential benefits and the risks of relying on AI in their studies.

After the full set of student scenarios had been completed by all partners, we proceeded to tailor and deliver the course at RUG. For the student

cohort, we implemented a blended format combining face-to-face workshops with self-paced online tasks. The scenarios developed by RUG were facilitated in person, allowing students to work collaboratively, exchange perspectives, and experiment directly with the featured tools. During these sessions, students also received guidance on how to continue their learning independently through the online materials.

For the online component, all tasks and resources were made available on Brightspace, the university's learning platform. Students were added to the course page, and during the onsite session they were shown how the online space was organised. The materials were arranged to support autonomous work, with clear instructions, dedicated folders for each scenario, and direct access to all necessary tools and readings.

To recruit students, we collaborated closely with the Honours College, a programme that brings together motivated and high-performing students from different faculties. After contacting the programme coordinators, the opportunity was shared with their student groups, which ensured visibility across several disciplines. This collaboration allowed us to organise both the onsite and online components specifically for Honours College students and helped us reach the number of participants required in the project proposal.

The onsite workshop took place on 19 May 2025. After this introductory session, students completed the rest of the course online during the last part of May, as well as throughout June and July. This planning took into account their academic workload, allowing them to engage with the asynchronous scenarios once their exams and final assignments were completed.

In terms of resources, the course relied primarily on Brightspace for hosting the online materials and activities. The onsite workshop was conducted in a classroom with movable furniture to facilitate group work and discussion. During both the face-to-face and online components, students made active use of the AI tools embedded in the scenarios, which enabled them to explore the possibilities and challenges of these tools in a realistic and meaningful way.

Summary of participation / quantitative indicators

The project proposal specified that each partner should involve 25 HE academics and 25 HE students in the blended capacity-building courses.

At RUG, we were able to meet - and in the case of students, exceed - these targets.

For the HE academics, a total of 31 participants completed the pre-survey, while 25 of them also completed the post-survey. In line with the WP4 guidelines, and to ensure consistency across partners, we report 25 HE academics as the official number of participants.

For the HE students, 44 students responded to the pre-survey and 37 completed the post-survey. Following the same criteria as above, we consider 37 HE students as the final number of participants in the blended course.

Overall, RUG successfully reached the participation requirements established in the project proposal for HE academics and surpassed the minimum number requested for HE students.

Real-classroom implementations from HE instructors

Selection of participants (instructors/students) and courses

In line with the project proposal and the instructions provided by the WP4 leaders, two HE academics who participated in the blended course were selected to implement the real-case scenarios in their own teaching practice. During the delivery of the blended courses, all participating instructors were informed that they would have the opportunity to carry out a classroom implementation if they wished to do so. Two academics expressed their interest voluntarily, and they were therefore invited to lead the implementation phase.

For privacy reasons, the names of these instructors are not disclosed. However, a brief professional profile of each participant is provided below:

- HE academic 1: Male lecturer with a background in biotechnology and a PhD in Science Education. He currently teaches at the Faculty of Science and Engineering at the University of Groningen. He has fewer than ten years of teaching experience in higher education.
- HE academic 2: Female lecturer with a background in biology and two doctoral degrees: one in Biology and another in STEM Education. She teaches at the Faculty of Science and Engineering at the University of Groningen and is also an external collaborator with NHL

Stenden in pre-service teacher education. She has more than ten years of experience in higher education.

Description of implementations

HE academic 1

In the case of HE Academic 1, after completing the blended course on AI, the instructor concluded that delivering only a small number of individual lessons would not be sufficient for his students. Instead, he decided to design a full course specifically aimed at developing critical AI literacy among PhD candidates from the Faculty of Science and Engineering. In planning this course, he identified the need to address not only teaching-related aspects - such as designing lesson plans with AI or rethinking assessment in the context of AI-rich learning environments - but also research-oriented dimensions. Consequently, I shared with him both sets of learning scenarios: those originally intended for instructors (focused on lesson design and assessment) and those developed for HE students (with a stronger connection to research activities).

Based on this material, the course created for the PhD cohort incorporated all the learning scenarios previously developed by RUG, namely:

- Introduction to AI and tools for navigating research literature
- AI tools for data analysis, writing, and communicating research
- Ethical dilemmas around the use of AI tools
- Integrating AI tools for learning
- AI & Academic Integrity - EU Act AI

The instructor applied all these scenarios in his course, combining pedagogical and research-focused perspectives to provide a comprehensive exploration of AI in higher education. Throughout the implementation, students engaged with a variety of AI tools, including ChatGPT, Gemini, Mistral Le Chat, Elicit, Research Rabbit, Consensus AI, SciSpace, and MagicSchool, which enabled them to examine the affordances, limitations, and ethical considerations associated with integrating AI into academic research and teaching practice.

HE academic 2

In this case, the instructor organized a seminar for STEM pre-service teachers from NHL Stenden University of Applied Sciences and the University of Groningen. As part of their programme, these students are

required to complete a final thesis project that combines research with the design, implementation, and evaluation of a lesson plan. For this reason, the instructor chose to structure the implementation around two complementary dimensions: the use of AI tools for lesson planning, and the use of AI tools to support research activities such as navigating scientific literature, analysing data, and drafting academic texts. To support this approach, I provided the instructor with the learning scenarios that addressed both teaching and research, ensuring alignment with the students' curricular needs.

The implementation therefore drew on three main types of scenarios: the scenario dedicated to designing teaching lessons with AI tools, the scenario related to AI tools for academic research, and the scenario addressing ethical dilemmas around AI use. By combining these elements, the instructor guided students in examining how AI can support the different stages of their thesis project, while also encouraging them to reflect critically on the limitations and ethical implications of these tools. During the seminar, students worked with several AI systems similar to those used in the first case, including ChatGPT, Gemini, Mistral Le Chat, Elicit, Research Rabbit, Consensus AI, SciSpace, and MagicSchool, which allowed them to explore the practical and ethical dimensions of AI integration in both teaching and research contexts.

Student participation / quantitative indicators

To comply with the project proposal, each instructor was expected to conduct their implementation with approximately 25 students, resulting in a combined total of 50 participants across both implementations. In the case at hand, the number of students involved in each implementation was as follows:

- HE Academic 1: 28
- HE Academic 2: 25

Evaluation and assessment findings

Analysis of pre- and post-assessment surveys

The data represented in this section is the result of two questionnaires that were conducted among Higher Education (HE) educators and HE students. The questionnaire measured members of these groups' self-confidence in relation to their knowledge and/or skills regarding AI in education, as well as their attitudes towards AI. The surveys were adjusted

to match the group educational context; e.g. educators were asked about their teaching practices, whereas students received a survey item about their learning practices. Each group completed the questionnaire two times: both before and after participating in a workshop about the use of AI in education. The results of the questionnaires are intended to establish the effect of this intervention.

The pre- and post-survey data for the two participant groups were analysed using methods appropriate to the two types of questions included in the questionnaire. The closed-ended items were analysed descriptively by summarising the distribution of responses. The analysis focused on identifying and describing observable patterns, thereby allowing changes between the pre- and post-survey results to become apparent.

The open-ended responses were analysed using a thematic analysis approach. This process involved reading all qualitative comments in full, identifying recurring or meaningful ideas, and generating initial codes to represent these ideas. The codes were then further refined and organised into broader themes that captured key patterns across participants' responses.

Results of course evaluation surveys

HE Academics

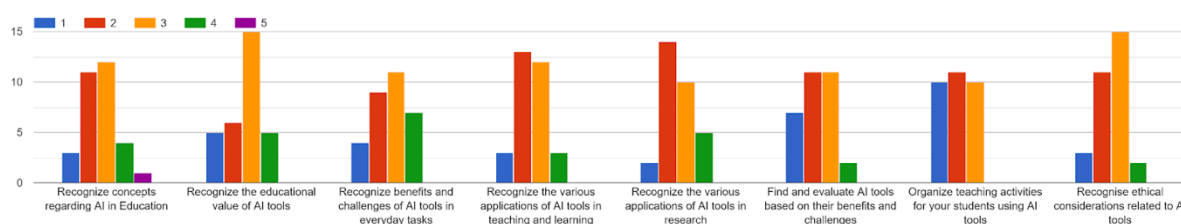
Pre-test

The pre-test questionnaire was completed by 31 educators (n=31).

Knowledge/skills

The following figure presents an overview of the scores participants awarded to items in this category.

How confident do you feel about the following? (1 for "Not at all" - 5 for "To a very large extent")



Responses tended to cluster around the lower and middle end of the scale, with many items displaying a frequency of a score of 2 and 3. For most items, both of these scores constitute two peaks. Low-end scores of 1 tend to occur less frequently, although there are notable exceptions.

The items *'Recognize the educational value of AI tools'* and *'Recognise ethical considerations related to AI tools'* display a peak at the 3 score. The former has a single peak with the rest of the responses being distributed rather equally among the other score options, while the latter has a second, slightly lower peak of the score of 2.

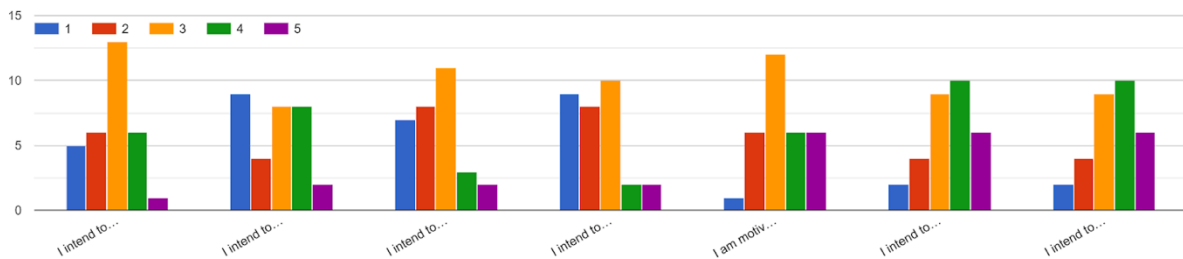
The items *'Find and evaluate AI tools based on their benefits and challenges'*, and *'Organize teaching activities for your students using AI tools'* display a relatively high frequency of scores on the lowest end of the scale (1). For the latter of these, responses are limited to scores of 1, 2 and 3; no educator has responded with a 4 or 5 for this question. Thus, not a single educator indicated having a high(er) degree of confidence in organizing teaching activities for students using AI tools, with nearly two-third of the participants selecting the low- end of the scale (1–2) for this item.

The number of respondents that awarded their confidence the maximum score of 5 ('to a very large extent') is limited across all the questions. There is one instance of an educator reporting a rating of 5, regarding their confidence to recognise concepts regarding AI in education. For every other item, not a single respondent reported a similarly high degree of confidence. The item regarding educators' confidence in being able to organise teaching activities for students using AI tools only contains scores of 1, 2 and 3. The frequency of the responses are rather evenly distributed across those lower and middle-end scores.

Most items showed clustering around the midpoint of the Likert-scale. Scores on the highest end of the scale (5) were virtually absent.

Attitudes

To what extent do you agree with the following statements? (1 for "Not at all" - 5 for "To a very large extent")



The response patterns across the items exhibit a range of distribution shapes, with several items showing peaks at the middle score 3. Survey items that pertain to intentions regarding practical use of the research topic receive comparatively higher levels of responses at the lowest score of 1. One item, pertaining to using AI in assessment, notably has a score of 1 as the most selected score. The highest score of 5 is selected infrequently for this group of items. A score of 5 is represented more often in items related to participants' intentions for future learning and development regarding AI in education.

Within this group of items, low-end responses at score 1 are scarce. Two of these items, namely *'I intend to seek further professional development opportunities to better understand and use AI in education'* and *'I intend to seek further professional development opportunities to better understand AI ethics challenges'* have an identical distribution. They show a slight peak at score 4, with most responses being concentrated in the middle-to-upper range, specifically around scores 3 and 4. The remaining item in this group, *'I am motivated to develop my skills in using AI tools'* peaks at score 3. For this item, a score of 1 was selected by one participant. The rest of the answers are distributed evenly over the remaining scores, leading to a modest frequency for scores 2, 4 and 5.

The item *'I intend to adapt my teaching practices to accommodate the changes brought by AI tools'* shows a prominent peak at the middle score of 3, with only a single response recorded at the high-end score of 5. The remaining scores occur at similar levels. The item *'I intend to use AI in my teaching'* contains a large number of responses at score 1, with a score 2 and especially 5 appearing less frequently. Scores 3 and 4 occur at the same rate for this item, though both remain slightly below the frequency observed for score 1.

The item *'I intend to use AI in my research'* displays limited responses at the high end of the scale, with most responses being distributed across the

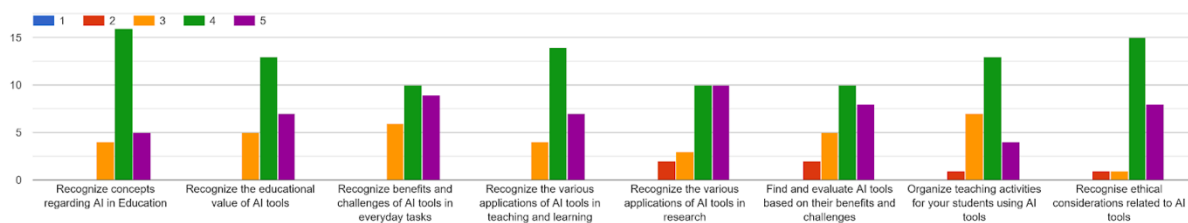
middle and lower scores, peaking at a score of 4. A similar pattern appears in the item *'I intend to use AI in my assessment'*, although this item displays a higher number of educators who selected the lowest score of 1.

Post-test

The post-test questionnaire was completed by 25 educators (n = 25).

Knowledge/skills

How confident do you feel about the following? (1 for "Not at all" - 5 for "To a very large extent")



The overall pattern that emerges from the responses shows a tendency toward higher-end scores. Across the items, responses predominantly cluster around scores of 4 and 5, with score 4 serving as the most prominent peak for nearly every item. Lower-end scores (1-2) occur to a very limited extent. Notably, none of the items received any responses at the lowest point of the scale (1), and only half of them show a small number of selections at score 2. For most items—aside from a single exception—a score of 5 appears as the second most common choice: scores towards the high-end of the scale occur the most frequently. In contrast, the mid-level score of 3 appears at moderate levels throughout the survey.

Examining the items individually, several distinctive response patterns become visible. The item *'Recognize concepts regarding AI in Education'* displays the most pronounced peak at score 4 of any item. Only a small portion of respondents chose scores 3 or 5, and no participant selected the lower-end scores of 2 or 1. A very similar distribution can be observed for the items *'Recognize the educational value of AI tools'* and *'Recognize the various applications of AI tools in teaching and learning'*.

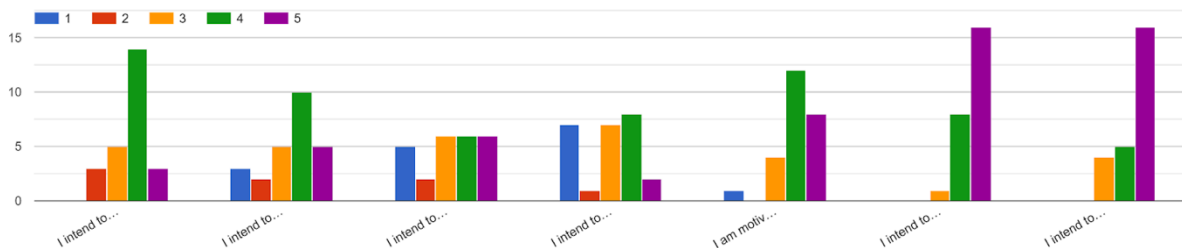
The item *'Recognise ethical considerations related to AI tools'* shows a cluster at the upper end of the scale, with responses heavily dominated by higher-end scores, in which a score of 4 has the largest frequency. A total of two respondents selected the lower-scale scores of 1 and 2 for this item.

For the item *‘Recognize the various applications of AI tools in research’* scores of 4 and 5 were selected equally often, making both the joint peaks of the distribution. This item has the greatest number of respondents that selected 5 out of any of the items.

‘Find and evaluate AI tools based on their benefits and challenges’ presents a rather similar different shape, but with slightly less participants awarding a score of 5 and slightly more awarding a score of 3. Finally *‘Organize teaching activities for your students using AI tools’* has a slightly elevated frequency of the 3 score compared to the other items, while receiving the fewest responses at score 5.

Attitudes

To what extent do you agree with the following statements? (1 for "Not at all" - 5 for "To a very large extent")



Across the items, the response distributions show noticeable variation, with some items demonstrating a strong concentration of scores at the higher end of the scale, while others present a more even spread across multiple response options. Items associated with intentions for future learning and development in relation to AI in education consistently exhibit higher-end scores, predominantly within the range of 4 and 5. Items that relate to the practical integration of AI in teaching practices present a somewhat more balanced distribution, with higher frequencies of middle and lower-end scores. Especially items relating to integrating AI in research and assessment present a relatively high frequency of the low-end score of 1.

Some items display gaps in the distribution, where specific scores (1 and 2) are represented minimally or not at all. However, there are also items for which a decent number of participants has selected the lowest possible score of 1. The highest score (5) appears in varying quantities across items: in some it forms the primary peak, while in items it is only sparsely represented.

The items *'I intend to seek further professional development opportunities to better understand and use AI in education'* and *'I intend to seek further professional development opportunities to better understand AI ethics challenges'* display a clear peak at the highest score of 5 and do not receive any responses below score 3. The mid-range score of 3 has a relatively low frequency for these items. The item *'I am motivated to develop my skills in using AI tools'* peaks at score 4 and shows a smaller secondary peak at score 5; this item also contains a single response at the lowest score of 1.

The item *'I intend to adapt my teaching practices to accommodate the changes brought by AI tools'* displays a pronounced peak at the score of 4, with comparatively few respondents selecting other score levels. Although the item *'I intend to use AI in my teaching'* also peaks at a score of 4, the distribution is more balanced across the entire scale, resulting in a less prominent peak than in the previous item. *'I intend to use AI in my research'* shows a relatively dispersed distribution, with most scores receiving similar numbers of responses. A score occurs notably less for this item, however.

A comparatively high number of responses that select the low-end of the score is found in the item *'I intend to use AI in my assessment'*; this item has the highest frequency of a 1 score out of any of the items in this section. The frequency of the 1 score is equal to the frequency observed for a score of 3, only slightly lower than that of score 4. Notably, although comparatively many participants selected the score of 1, the slightly less low-end score of 2 was selected by only a single participant, making for a stark contrast. The highest possible score of 5 was awarded by just 2 participants, making the scores of this item center around either the lowest point of the scale (1) or the middle-high point (3 and 4).

HE students

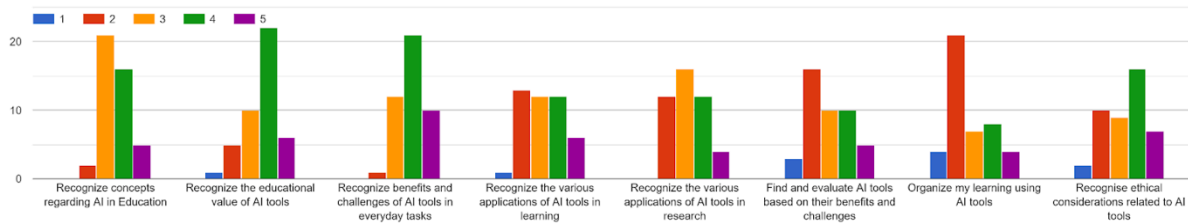
Pre-test

A total of 44 students participated in the pre-test survey (n= 44).

Knowledge/skills

The students rated their amount of confidence regarding various aspects of AI literacy in education.

How confident do you feel about the following? (1 for "Not at all" - 5 for "To a very large extent")



The distribution of responses for these survey items shows a high degree of variation in score distribution. Items that relate to conceptual and abstract knowledge about AI in education tended to display a higher frequency of higher-end scores. Items regarding the practical application of AI in education and learning show the opposite pattern, with scores on the middle and lower end of the scale being higher in number.

Some items tend to have scores in which the frequencies are somewhat balanced, primarily centered around the more moderate scores of 2, 3 and 4. Other items display clear peaks. Five out of the eight items display a relatively high number of participants who awarded the item a score of 2, with 2 being the most frequently chosen score for a total of four items.

One feature that nearly all items share is a low number of responses on either far-end of the 5-point Likert scale, meaning scores of 1 and scores of 5 occur sparingly.

For three out of the 8 items, no respondent awarded a one. This concerns the items *'Recognize concepts regarding AI in Education'*, *'Recognize benefits and challenges of AI tools in everyday tasks'* and *'Recognize the various applications of AI tools in research'*.

Several obvious peaks can be observed.

The item *'Recognize concepts regarding AI in Education'* is dominated by scores of 3 and 4, and has two peaks. The most frequently awarded score is 3, but 4 is relatively close. Especially when compared to the other scores, which only a few participants selected. No participant has selected a score of 1.

'Recognize the educational value of AI tools' has a clear peak too, with a score of four standing out as the most frequent. The contrast with the other scores of this item is rather large, as they have much lower

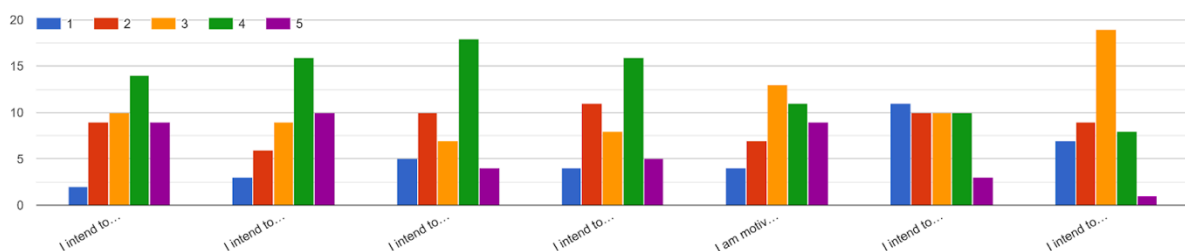
frequencies compared to the peak. A score of 1 was awarded by one participant.

Similarly, the item ‘Recognize benefits and challenges of AI tools in everyday tasks’ has a clear peak regarding the score of 4, but the distribution tends to cluster a bit more around the middle and higher end scores (3 to 5) compared to the previous item. Only one participant selected a score of 2, and no student selected a score of 1. Thus, all but one of the participants selected a score of 3 or higher. This item has the greatest frequency of awarded 5 scores of any of the items in this section.

Of note too is the result found in the ‘Organize my learning using AI tools’ item. The distribution of this item is heavily dominated by a score of 2, the other scores being much lower in frequency. This item additionally has the highest number of respondents who were awarded a score of 1 (n = 4) of all the items in the Knowledge/skills section.

Attitudes

To what extent do you agree with the following statements? (1 for "Not at all" - 5 for "To a very large extent")



The survey results reveal various distinct distributions, with the majority of the items having a single peak score. Items with a peak score of 4 generally inquired about the students’ intention to use AI in their learning practices. Items with a flatter distribution or a peak at the mid score were about students’ intention to pursue further development of their skills and understanding of AI. Across all items, responses at the lowest end of the scale (score 1) were recorded, but their frequency was generally low, highlighting that very few participants strongly disagreed with the statements.

The notable exception is the item ‘I intend to seek further training opportunities to better understand and use AI in education’, where score 1 was the most frequently selected. This item additionally shows a

comparatively flat distribution across most scores, although very few participants selected the highest score of 5.

For the item *'I intend to seek further training opportunities to better understand AI ethics challenges'*, a score of 3 shows a clear peak. One participant selected the highest score of 5. The distribution of the remaining scores for this item is relatively even.

In contrast, the items *'I intend to adapt my learning practices to accommodate the changes brought by AI tools'*, *'I intend to use AI in my learning'*, *'I intend to use AI in my essays and deliverables'* and *'I intend to use AI in my research'* show a distinct peak at the higher-end score of 4. The first two of these items combine this peak with a relatively high frequency of a score of 5.

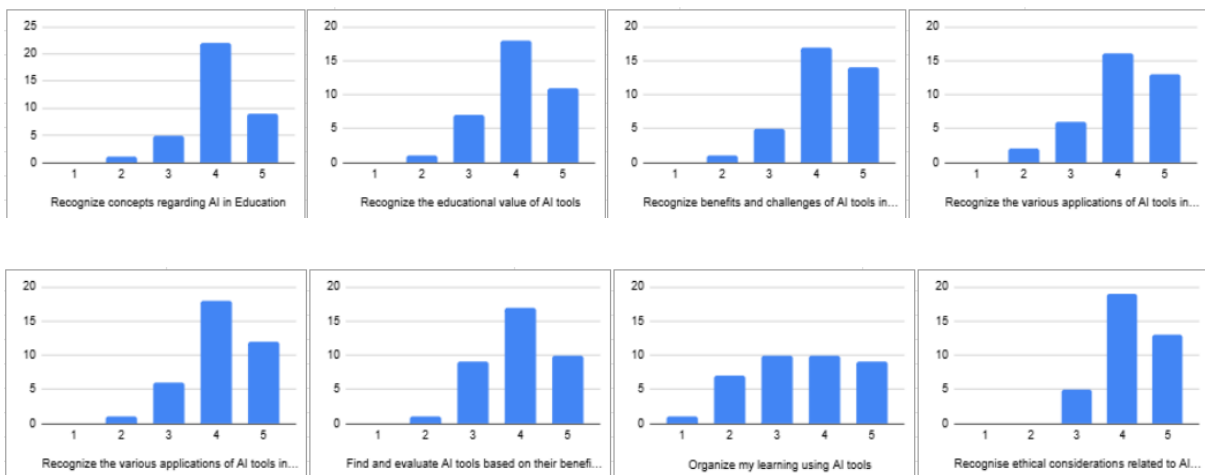
These items, with the exception of *'I intend to use AI in my learning'* also display a relatively high proportion of participants selecting score 2. While there is a peak at higher-end scores, lower scores were also reported a considerable amount.

The item *'I intend to adapt my learning practices to accommodate the changes brought by AI tools'* depicts a slightly more balanced distribution.

Post-test

The post-test questionnaire was completed by 38 students. One of the respondents did not consent to participate in the research. These responses were excluded from the analysis, making for a total number of responses of 37 (n=37).

Knowledge/skills



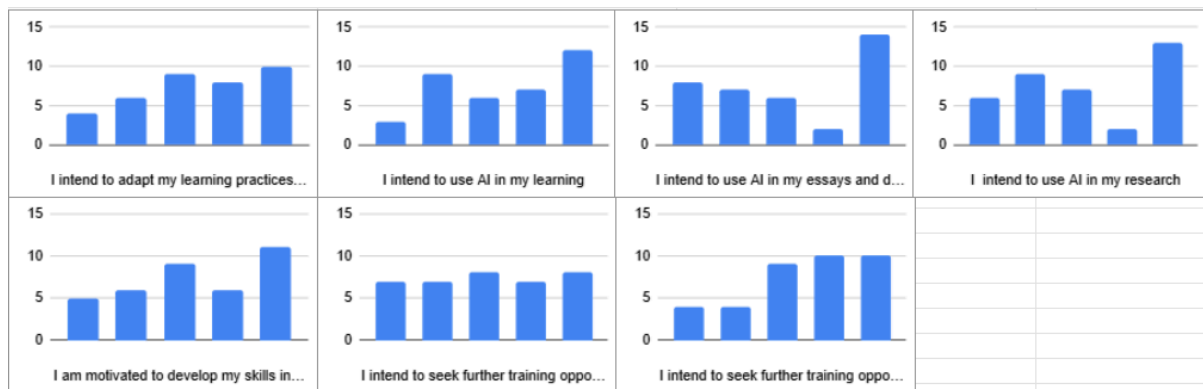
Across the eight items, responses generally fall toward the upper end of the 5-point Likert-scale, displaying similar distribution patterns. For nearly all items, with the exception of one, scores of 4 and 5 were selected most frequently, with relatively little representation at the lower end of the scale.

For nearly all items, a score of 4 was the most awarded response. The item *'Recognize concepts regarding AI in Education'* had the highest number of respondents that awarded a score of 4. Scores of 3 appear in moderate amounts across items, tending to have a frequency around 5. Scores of 2 appear occasionally but not prominently. Scores of 1 are extremely rare, occurring only once across all items. The exception to this pattern is the item regarding *'Organise my learning using AI tools'*. Scores for this item were more broadly distributed. The item had the highest frequency of lower-end responses (1 and 2) out of all items. Additionally, it is the only item of this survey where any respondent reported a score of 1.

For all other items, no respondent selected a score of 1.

For the item *'Recognise ethical considerations related to AI tools'* no respondent awarded a lower-end score of 1 or 2. This is the only item for which this is the case.

Attitudes



The scores for these items include the presence of higher-end scores. For 5 out of the 7 total items, the upper-end score of 5 was selected more frequently than any of the other scores. However, the remainder of the responses -which for most items is a sizable number not much lower than the peak score of 5- tend to spread out rather evenly across scores of 1 until 4, with some notable exceptions.

Scores for the item *'I intend to seek further training opportunities to better understand and use AI in education'* were distributed rather evenly, with

each score having a frequency of either 7 or 8. The item *'I intend to seek further training opportunities to better understand AI ethics challenges'* was the most top-heavy, with the majority of the respondents selecting middle and higher-range scores.

The frequency of scores of 5 tended to be elevated. For the items *'I intend to use AI in my research'* and *'I intend to use AI in my essays and deliverables'* the high number of respondents who chose 5 was in contrast with the much lower frequency of the slightly less high-end score of 4. In those same items, the middle and lower-range scores of 3, 2 and 1 were selected at similar rates, which is more often than the score of 4, but not as much as a score of 5.

Open ended question

In the post-test survey, students were presented the question *"What aspects of the course did you find most engaging or insightful? How have they contributed to your learning?"*.

The themes that emerged from the participants' responses illustrate an interconnected set of experiences related to learning about AI, engaging with the learning methods employed during the workshop and exploring the ethical dimensions of AI.

The most pronounced theme was the latter, with ethics being mentioned by the majority of participants. Students highlighted the value of debating ethical issues, reflecting on potential disadvantages of AI, including its biases. Multiple participants mentioned increased awareness of ethical consideration. For some, this resulted in gaining a broader perspective on responsible use of AI.

Learning about AI formed another substantial theme, with participants describing how the workshop expanded their understanding of AI. This included the various AI tools presented during the workshop. Participants mention an increased awareness of both the advantages and disadvantages of AI use, noting increased familiarity with the problems and limitations inherent to AI systems, as well as the benefits these technologies may offer in academic or professional contexts. This emphasis on learning is related to the methods employed during the workshop, as participants note the way the workshop presented AI has facilitated this understanding; participants indicated that the use of example cases and practical demonstrations allowed them to immediately implement aspects of what they had learned. The opportunity to experiment directly with AI

tools was also appreciated. Additionally, the use of examples were characterised as 'insightful'. The pro-con analyses incorporated into the workshop contributed to a more nuanced perspective by helping to provide insight into and awareness of biases and limitations of AI.

In addition to these learning-focused themes, a small number of participants related the workshop content to their own contexts, noting that they had gained insight into how AI could be used to improve the quality of their academic output.

Generally, the themes present in the participants' responses indicate that the workshop structure that supported the learning process, and learning about AI has enabled participants to recognise both opportunities and limitations of AI use, and increased their awareness of ethical considerations.

Comparison

A comparison of pre- and post-test survey responses across educators and students shows shifts in how participants positioned themselves on the 5-point Likert scale. Post-intervention both educators' as well as students' responses tended to select higher scores compared to pre-intervention.

The following section presents the comparison between the pre-test and post-test results per category and target group.

Knowledge and Skills

Educators

The pre-test survey distributions in the knowledge and skills section are characterised primarily by clustering around the lower and middle scores, most notably around scores of 2 and 3. High-end scores are nearly absent, with only a single occurrence of a score of 5 across all items. Taken together, the pre-intervention pattern suggests that educators' self-reported knowledge and skills were generally situated within the lower and middle portions of the Likert scale.

In contrast, the post-test survey distributions for educators show a tendency toward higher-end scores. Scores of 4 and 5 dominate nearly all items, with score 4 typically appearing as the primary peak and score 5 serving as the second most frequent response. Lower-end scores (1 and 2) appear only minimally, with no item receiving a score of 1 at all, marking a departure from the patterns observed before the intervention. Mid-range

scores of 3 occur moderately but are much less prominent than in the pre-intervention data.

Students

The pre-test survey distributions display substantial variability. Many items show scores concentrated around the moderate range (2–4), while others have identifiable peaks. A recurring feature is the low frequency of scores at both extremes of the scale, with scores of 1 and 5 rarely selected. Items relating to abstract or conceptual knowledge show somewhat higher frequencies of high-end scores, whereas items concerning practical application tend to have more responses in the middle and lower ranges.

Following the intervention, the post-test responses demonstrate a pattern of clustering around higher-end scores, although lower scores (1–4) do continue to appear across items. For nearly all items, scores of 4 and 5 represent the highest frequencies, with score 4 emerging as the most frequently selected option across the set of items. Only one item diverges from this overall pattern.

Attitudes

Educators

In the pre-test data, Attitude items also display various distribution shapes. Many items are characterised by peaks at a score of 3. Items related to practical use of AI in education tend to have notably higher frequencies of the low-end score (1), while the high-end score (5) appears infrequently. However, a score of 5 is represented more often in items related to participants' intentions for future learning and development regarding AI in education.

The post-test data continue to display considerable variation across the individual items. Items addressing educators' plans for learning and development regarding AI in education tend to have scores concentrated at the upper end of the scale, with scores of 4 and 5 occurring most frequently. In contrast, items focusing on the practical integration of AI in education show a more even spread of responses, with comparatively higher representation in the mid-range and lower segments of the scale.

Students

Among students, the pre-test attitude scores mainly cluster around the middle scores, with a single peak per item being common. Low-end

responses are recorded across all items but generally occur sparsely. Higher-end peaks (score 4) are most often associated with items about intention to use AI in learning practices, whereas items related to future skill development tend to show flatter distributions or peaks in the middle score of 3.

The post-test results show a shift towards distributions in which both the lower and the higher end of the Likert scale are selected with increased frequency, compared to the pre-test results. For five of the seven items, the highest score (5) is the most frequently selected option. The remaining scores (1–4), which make up a substantial proportion of responses for most items, are generally distributed rather evenly, though some items show notable deviations from this pattern by showing more erratic distribution.

Feedback from classroom implementations

Feedback from HE Academics/Instructors

In a survey after the classroom implementation, the two HE teachers were presented with four open questions to assess their experiences related to the impact of the training on students, managing challenges, and strengths and points of improvement of the training.

The first question was “*What aspects of the AI-based tools and materials from the INFINITE course worked particularly well or contributed most effectively to your classroom teaching?*”.

Regarding these aspects, both teachers highlighted the value of presenting a mixture of different tools while explicitly addressing their limitations and affordances. The materials were described as ‘*accessible resources*’ with an appropriate level of complexity and as including realistic information on the current usage of AI tools. Importantly, one teacher emphasised that the course impacted their teaching in a more reflective and critical way than initially expected. The other one liked to reflect on AI use ‘*sociocritically*’ with their students. According to the teachers, rather than positioning AI as the central focus of teaching, the implementation framed AI as an opportunity rather than the ‘*center of teaching*’. They also liked that the course was encouraging a broader engagement with educational questions, which reduced the sense of being overwhelmed by the topic of AI and encouraged critical evaluation of AI tools towards their pedagogical usefulness in education.

The second question was asking *'What were the main challenges you encountered during the in-class implementation, and how did you attempt to address or overcome them?'*

When discussing challenges, both teachers pointed to the different levels of prior experiences of students as a key issue. These differences manifested in a *'strong polarization'* of attitudes towards AI in higher education, ranging from students who were not very reflective to others who were very critical about AI use, some of them also bringing up the environmental impact of AI in class. Both teachers expressed challenges with managing the different student views adequately. To address this issue and keep the class productive, one teacher described creating a *'dialogic environment'* in which students could safely voice their opinions.

Additionally, one teacher described difficulties related to the privacy and ethical limitations of some AI tools, which made them unsuitable for use in the specific educational institution.

In the third question, the HE teachers were asked about their opinion on *'the overall impact of the AI tools on your students' engagement, learning outcomes, or specific skill development'*.

Here, in terms of overall impact, both teachers reported *'very high'* levels of student engagement throughout the activities and discussions. One teacher described the less critical students becoming more aware of potential concerns, while more critical students were open to trying out AI tools and learned to express their points in a constructive way, leading to *'rich discussions'* that raised relevant and challenging points. Based on this impression, both teachers considered the expected learning outcomes to be met. They observed key competences being developed, most notably the ability to engage in *'critical evaluations about how AI tools are presented and used'*. Overall, the implementation supported a shift towards more informed and reflective positions on the use of AI in education in both student groups.

Finally, the teachers were asked to specify *'Based on your experience, what specific suggestions do you have for improving the INFINITE course content, training format, or the AI tools themselves for future implementation?'*

For the last point, both teachers expressed an overall positive assessment of the INFINITE course. The resources were described as *'fantastic'* and it was highlighted that they include *'key examples and contents for AI*

literacy' by one instructor. Generally, the course content was deemed appropriate, and the selected AI tools were seen as suitable and aligned with the aims of the training.

Suggestions for future implementations included adding more user experiences and examples to further expand the materials, as well as reconsidering the training format, with a preference for a fully onsite setup over blended learning to create '*more coherent learning experiences*'. From this, it remains unclear which parts of the implementation were delivered onsite or online by the instructor who raised that point, though. One teacher also suggested making the '*critical dimension*' of the course even more explicit, for example, by providing concrete examples of what it means to be critical of AI in specific educational contexts.

Feedback from students

After the two interventions, a total of 53 HE students participated in the post-implementation survey (Group A: N = 28 and Group B: N = 25).

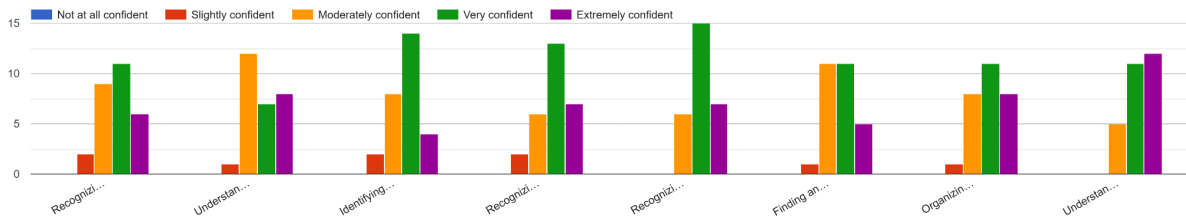
Similar to the earlier assessment surveys, the student questionnaires consisted of three closed-ended sections with a 5-point Likert scale: One section addressing knowledge and skills, one concerning attitudes, and a third additional one targeting a more general evaluation of experienced classroom activities.

Knowledge/skills

The students rated their confidence regarding various aspects of AI literacy in education.

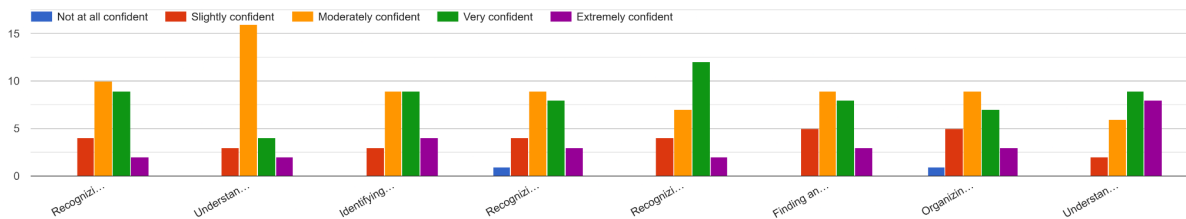
The distribution of responses for these survey items shows a moderate degree of variation in score distribution, with Group A rating their knowledge overall more positively than Group B. There were no clear patterns regarding the content of the items (conceptual and abstract knowledge about AI in education vs practical application of AI in education and learning), neither within nor across groups.

Section A. Knowledge and skills After participating in the classroom activities, how confident do you feel about the following?



In Group A, items have been valued with high confidence scores overall, with five peaks (3 of them very distinctly) at ‘Very confident’ across items and no rating in the ‘Not confident at all’ range. Two out of the eight items were answered with a score of 3 or above. This concerns the items ‘*Recognizing how AI tools can support research-related activities*’ and ‘*Understanding ethical issues related to the use of AI tools in education*’. The remaining six items have either one or two participants who indicate being ‘slightly confident’ about the prompt. Students were most confident in their understanding of ‘*ethical issues related to the use of AI tools in education*’, where the peak was at a score of 5. For two prompts, the majority of respondents indicated a moderate level of confidence: This is the case for the items ‘*Understanding the educational value and potential of AI tools used in class*’ and ‘*Finding and evaluating suitable AI tools for learning based on their benefits and limitations*’. The latter has the second-highest number of scores with a value of 4.

Section A. Knowledge and skills After participating in the classroom activities, how confident do you feel about the following?



In Group B, most items tend to have scores primarily centered around the more moderate scores of 3 and 4, with peaks overall being less distinct compared to Group A. For six out of the 8 items, no respondent awarded a score of 1. Two items have one participant indicating ‘Not at all confident’. This is the case for ‘*Recognizing how AI tools can support and enhance learning activities*’ and ‘*Organizing and managing my learning process using AI tools*’. Both of these items have their peaks at a score of 3, indicating that the other students are moderately confident about these points.

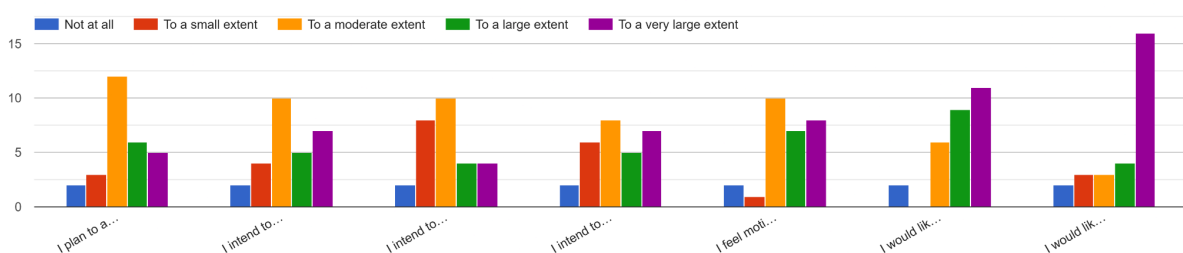
Two obvious peaks can be observed: One is at score 3 for the prompt ‘Understanding the educational value and potential of AI tools used in class’, which is hence similarly rated in both groups. The other one is at score 4 for ‘Recognizing how AI tools can support research-related activities’. As in Group A, student of Group B were most confident about the item referring to their understanding of ethical issues regarding AI tools in education, mostly indicating ‘Very confident’, though. For ‘Identifying the benefits and challenges of using AI tools in everyday academic tasks’, both scores 2 and 4 were selected an equal amount of times, followed by score 5.

Attitudes

To get insight into students’ attitudes, they were asked to indicate to what extent they agree with seven different statements.

The survey results reveal various generally broad distributions. In Group A, a trend emerges where students seem very motivated to continue learning about AI tools in education, alongside their ethical implications, but are somewhat more doubtful when it comes to the intent of using AI tools for their own research work and deliverables. This notion can equally be observed in Group B, where the items evaluated most negatively are the ones revolving around the concrete usage of AI tools for course and research work. Again, students displayed a wish to develop their knowledge of AI tools further. It can be concluded that generally, there is a gap between the openness to theory and practice.

Section B. Attitudes After the in-class implementation, to what extent do you agree with the following statements?

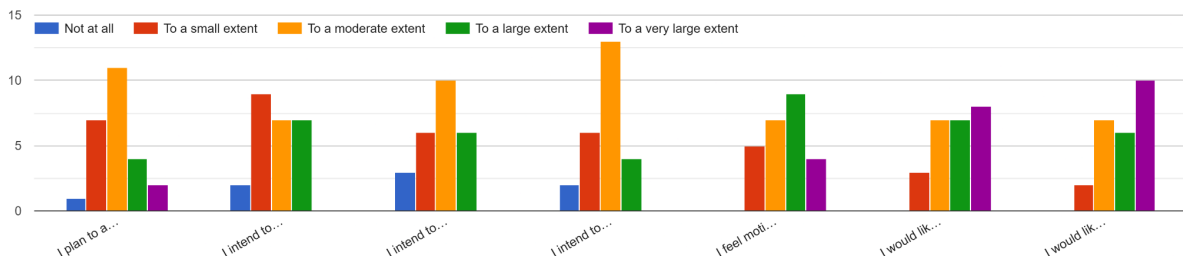


For Group A, the most notable item is ‘I would like to learn more about ethical issues and responsible use of AI tools’, where half of the participants (n = 16) indicated agreement to a very large extent. The item ‘I would like to participate in more training opportunities to better understand how to use AI in education’ stands out as well, as most participants gave this item a score of 5. Everyone, except for two

participants, indicated a score equal to or above 3 for this prompt. Each item had two respondents who answered *'not at all'* to the prompts. Notably, when looking at the individual responses more closely, those are not the same participants for all items.

Considering the general distributions in this group, five items had a peak at score 3, out of which 3 items had score 5 as the second most-given response. This hints at less uniformity in responses compared to the *'Knowledge and Skills'* section. The clearest peak at score 3 can be observed at the item *'I plan to adapt my learning strategies to include the use of AI tools'*. For this item, the rest of the distribution is skewed towards more positive responses than disagreeing responses. The same trend can be observed for the items *'I intend to use AI tools to support my studies and learning tasks'* and *'I feel motivated to further develop my ability to use AI tools effectively'*. Outcomes were somewhat more mixed when considering the items *'I intend to use AI tools when preparing essays, assignments, or other deliverables'* and *'I intend to use AI tools to support my research activities'*. The former has more participants giving scores of 1 and 2 than 4 and 5, respectively. The latter shows a rather flat distribution, with the peak at score 3 not being very distinct.

Section B. Attitudes After the in-class implementation, to what extent do you agree with the following statements?



Group B also showed the most agreement with the item targeting ethical issues and the responsible use of AI tools, although the peak is slightly less dominant compared to Group A. In general, the different prompts evoked a broad range of responses. Different from Group A, in Group B, three items did not receive any total disagreement responses. Those are *'I would like to learn more about ethical issues and responsible use of AI tools'*, *'I would like to participate in more training opportunities to better understand how to use AI in education'*, having its peak at score 5 as well, and *'I feel motivated to further develop my ability to use AI tools effectively'*, with most participants agreeing *'to a large extent'*.

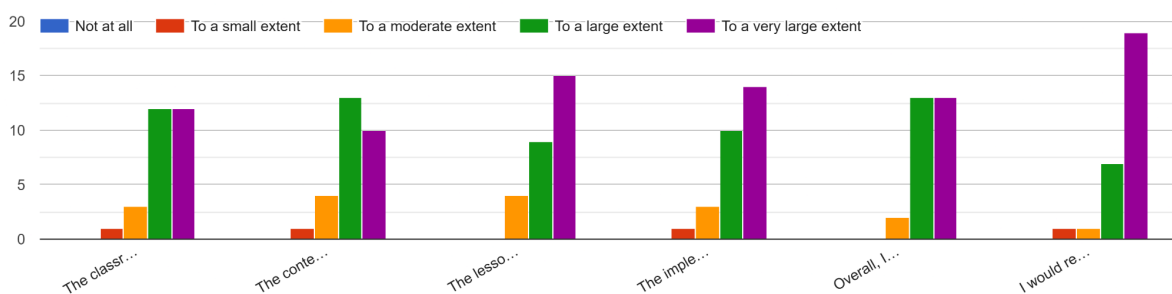
Opposing this, three items had no responses at score 5: Firstly, *'I intend to use AI tools to support my studies and learning tasks'*, where most participants only agreed 'to a small extent' (n = 9). Secondly and thirdly, *'I intend to use AI tools when preparing essays, assignments, or other deliverables'* and *'I intend to use AI tools to support my research activities'*, which both show a clear peak at score 3 and have a distribution skewed towards lower scores.

Evaluation

This section presents an overview of how two participant groups evaluated the classroom implementation, focusing on perceptions of learning quality, engagement, relevance, and overall effectiveness of the in-class activities, rather than relating directly to the use of AI tools in education.

Both Group A and Group B generally reported positive experiences, indicating broad agreement that the implementation supported learning and participation. Group A showed particularly strong agreement for items related to engagement, active participation, and overall satisfaction, with very few lower ratings across all prompts, while relevance to their studies, although still rated positively, emerged as the comparatively weaker aspect. Group B similarly rated most items highly, especially content relevance and overall effectiveness, but displayed more mixed responses regarding active participation and collaboration. Overall, Group A's responses were more consistently positive, whereas Group B's evaluations reflected greater variability across specific aspects of the implementation.

Section C. Evaluation Please indicate your level of agreement with the following statements regarding the classroom activities you participated in.



In Group A, there was a vast majority of positive reactions towards the classroom activities. None of the items were evaluated with a score of 1, meaning that the participants always agreed at least 'to a small extent', with two items also only showing scores of 3 and above. This was the case

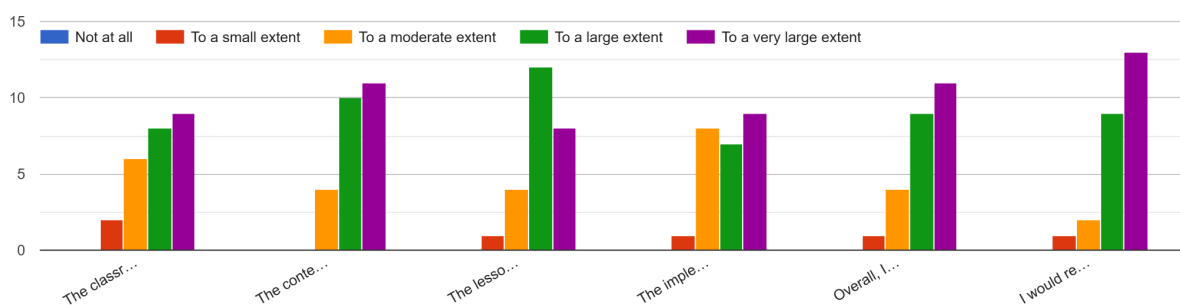
for ‘Overall, I am satisfied with the quality of the in-class learning experience’, otherwise having an equal amount of score-3 and score-4 responses, and ‘The lessons and activities presented the content in an engaging and interactive way’, which showed a peak at score 5 (n = 15), followed by a score of 4 (n = 9). For the items where score 2 is given, it is only given by one participant, respectively.

Three items had a clear peak at agreement ‘to a very large extent’: ‘I would recommend these classroom activities and materials to other students’, which has the highest agreement of all items among most participants (score 5: n = 19), as well as ‘The implementation encouraged my active participation and collaboration’, with a distinct distribution towards high scores, and as previously mentioned ‘The lessons and activities presented the content in an engaging and interactive way’.

The items ‘Overall, I am satisfied with the quality of the in-class learning experience’ and ‘The classroom activities effectively achieved their intended learning objectives’ both had an equal amount of scores for scores 4 and 5 (n = 13 and n = 12, each), which indicates a relatively high level of agreement amongst participants relating to those prompts.

The remaining item ‘The content covered during the in-class implementation was relevant to my studies’ is overall rated lowest but still has a relatively small amount of lower scores (n = 1 for ‘to a small attempt’ and n = 4 for ‘to a moderate attempt’) and a peak at score 4 (n = 13), closely followed by score 5 (n = 10).

Section C. Evaluation Please indicate your level of agreement with the following statements regarding the classroom activities you participated in.



Looking at the outcomes of Group B, an overall positive trend in responses emerges as well. However, the distributions of some prompts are a bit broader and spread out than for Group A. One item has scores from 3 upwards: ‘The content covered during the in-class implementation was

relevant to my studies', which has its peak at score 5 (n = 11) and is closely followed by score 4 (n = 10). All other items have one response indicating agreement 'to a small extent' and one item noting a score of 2 for two participants. This is the prompt '*The classroom activities effectively achieved their intended learning objectives*', which, compared to the other prompts, shows an increased number of score 3 answers (n = 6) but has its overall peak at score 5 (n = 9).

Generally, five out of the six items have 'to a very large extent' as the most chosen answer. Only one item had a clear peak at score 4 (n = 12), namely '*The lessons and activities presented the content in an engaging and interactive way*'. This is followed by many participants giving a score of 5, though (n = 8).

One item stands out, as it has the highest number of scores of 3. This is the prompt '*The implementation encouraged my active participation and collaboration*', where eight students agreed 'to a moderate extent'. The scores 5, 3 and 4 follow one another closely in this distribution.

Challenges, lessons learned and recommendations

Challenges (operational/logistical/pedagogical/technical)

Overall, the WP4 implementation at RUG progressed smoothly and according to plan. At the same time, the process also revealed several challenges that are important to acknowledge:

- Participant recruitment required substantial effort. Although the topic is timely, HE academics typically have very demanding schedules, combining teaching, research, supervision, and service tasks. Similarly, HE students often have limited availability due to coursework deadlines, exams, and other programme requirements. As a result, recruitment and scheduling represented the main operational bottleneck at RUG.
- While the blended format offers flexibility and can support participation, both educators and students indicated that face-to-face sessions were more engaging and enabled richer peer discussion. This created a tension between accessibility (online, self-paced work) and depth of engagement (onsite interaction).

- Because institutional guidance on AI is still developing, many participants entered the training looking for clear and immediate answers about what is allowed, what is recommended, and how they should act in practice. In several cases, this was difficult to address directly, since AI use in higher education remains an evolving topic and many issues are still being debated.
- Some participants were reluctant to create accounts for external AI tools due to privacy concerns and uncertainty about how personal data could be used. This concern was legitimate. To reduce this barrier and support participation, RUG created accounts that participants could use during the activities, limiting the need for individual sign-ups.

Lessons learned from implementation

Through the implementation, we learned several important lessons about what worked well and what could be improved:

- The pedagogical sequencing matters: A structure that starts with concrete affordances of AI tools and then moves towards limitations (technical, pedagogical, and ethical) supported engagement and helped participants develop a more balanced and critical understanding.
- Participant expectations shape participation: Expectations varied considerably. Some participants primarily wanted practical guidance on using specific tools, while others valued the reflective and ethical discussions most. This confirms that managing expectations early, and making the course rationale explicit, is essential.
- AI literacy training can support professional reflection: Discussions around AI tools often became an entry point for broader reflection on teaching identity, disciplinary norms, and what counts as good academic practice. Similar reflections also emerged among students when linking AI use to academic writing, research integrity, and learning strategies.

Recommendations for future implementations

Based on the challenges and lessons described above, we suggest the following recommendations:

- Match the format to the local context: Partners should make an explicit decision about the balance between onsite and online activities based on their participants' availability and preferences. In contexts where engagement and peer discussion are priorities, a more onsite-intensive format may be more effective.
- Keep the training closely connected to participants' daily practices: The scenarios should remain aligned with what educators and students actually do in their everyday academic work (for example, designing teaching activities, giving feedback, conducting literature searches, or writing research texts). The more the training connects to real needs, the higher its perceived relevance.
- Broaden the scope of “risks” discussed in AI training: Ethical dilemmas are essential, but training programmes should also address emerging problematic uses that participants may already encounter in practice. For example, several AI tools are increasingly used for emotional support or coaching, and this raises important issues that should be made visible and discussed critically.
- Reduce barriers related to tool access and privacy: When activities require experimentation with multiple tools, partners should consider practical alternatives to individual account creation, especially for tools with unclear data practices. Providing institutional accounts, offering tool alternatives, or allowing “observer roles” can help participants engage without feeling pressured to share personal data.

UAEGEAN (University of the Aegean) National Report

Executive summary

This national report presents the outcomes of the implementation of Work Package 4 (WP4) of the INFINITE project at the University of the Aegean (Greece). WP4 focused on building AI-related capacity in higher education through blended courses for HE academics and students, as well as real-classroom implementations led by participating instructors.

The University of the Aegean implemented two blended capacity-building courses, one targeting HE academics and one targeting HE students, both based on the 12 learning scenarios developed collaboratively by the INFINITE consortium. All scenarios were translated into Greek and localised to ensure relevance to the national higher education context. The courses were delivered through the university's Moodle Learning Management System, allowing participants to engage flexibly with the content.

For HE academics, the course was delivered in September 2025 and attracted 35 participants, of whom 25 completed both the pre- and post-course questionnaires, fully meeting the project target. The student course was delivered during the Spring semester (May 2025) and enrolled 35 undergraduate and postgraduate students, with 31 completing both pre- and post-assessment instruments, exceeding the minimum participation target.

In addition to the blended courses, two real-classroom implementations were carried out within undergraduate courses of the Department of Primary Education, involving a total of 56 students, thereby surpassing the target of 50 participants. These implementations integrated AI tools into literature and history education, combining disciplinary learning objectives with the development of AI literacy, ethical awareness, and critical thinking. Student feedback was collected with a 100% completion rate.

Evaluation findings from pre- and post-course surveys indicate clear positive shifts in both HE academics' and students' self-reported knowledge, skills, and attitudes related to AI in education. The most pronounced improvements were observed in ethical awareness, critical evaluation of AI outputs, and confidence in understanding the pedagogical potential and limitations of AI tools. At the same time, participants

maintained a reflective and cautious stance towards high-stakes uses of AI, particularly in assessment and academic writing.

Qualitative feedback from instructors and students further highlights the value of the INFINITE pedagogical framework, the AI Readiness Checklist, and the use of multiple AI tools to support comparative and critical engagement. Challenges identified during implementation included managing participant expectations, addressing uncritical trust in AI-generated content, and navigating ethical and technical constraints.

Overall, the WP4 implementation in Greece successfully met or exceeded all participation targets and contributed to the development of informed, reflective, and ethically grounded approaches to AI use in higher education. The findings underline the importance of pedagogically framed AI literacy initiatives and provide concrete insights and recommendations for future implementations at national and European level.

Implementation of the blended capacity-building courses

Course delivery for HE academics

In line with the project proposal and the guidelines provided by the WP4 leaders, the University of the Aegean implemented the blended capacity-building course for Higher Education (HE) academics, based on the set of 12 learning scenarios developed collaboratively by the INFINITE project partners. Prior to delivery, all learning scenarios were translated into Greek to ensure accessibility and relevance for the national context. The translated materials were reviewed and adapted where necessary to align with Greek higher education terminology, institutional practices, and ethical frameworks, while preserving the pedagogical structure and learning objectives defined at project level.

Participant recruitment was carried out through an open invitation distributed via the University of the Aegean academic network. The invitation was addressed to professors, teaching staff, researchers, and other academic personnel of the University of the Aegean, as well as to staff from other recognised Greek higher education institutions who were invited to participate. In total, 34 HE faculty members enrolled in the blended course. The participant group included academics with diverse roles and professional profiles, reflecting a broad cross-section of the Greek higher education sector. In terms of gender distribution, the cohort consisted of 10 women and 24 men.

The delivery of the blended course took place in September 2025. Given participants' professional obligations and institutional schedules, the course was organised primarily as an online learning experience, allowing for flexible engagement with the materials. Participants were able to complete the learning scenarios at their own pace within the defined delivery period.

All course materials and activities were hosted on the Learning Management System (LMS) Moodle of the University of the Aegean, which served as the central platform for course delivery. The Moodle environment was structured to provide clear guidance, organised access to the translated learning scenarios, and supporting resources. The platform enabled participants to engage with the content asynchronously and supported the overall implementation of the blended capacity-building approach for HE academics

Course delivery for HE students

In accordance with the project proposal and the WP4 guidelines, the University of the Aegean implemented the blended capacity-building course for Higher Education (HE) students, based on the 12 learning scenarios for students developed collaboratively by the INFINITE consortium. Prior to implementation, all learning scenarios were translated into Greek to ensure linguistic accessibility and relevance for the national higher education context. The localisation process focused on adapting terminology, examples, and references to align with Greek academic practices, while maintaining the pedagogical structure, learning objectives, and ethical focus defined at consortium level.

Participants were recruited from the Department of Primary Education of the University of the Aegean, targeting both undergraduate and postgraduate students. Recruitment was carried out through course announcements and direct communication within the department. In total, 35 students enrolled in the blended course, representing a mixed cohort of undergraduate and postgraduate learners. In terms of gender distribution, approximately 80% of the participants were women, reflecting the demographic profile of the department.

The delivery of the course took place during the Spring semester (May 2025). The blended format was designed to accommodate students' academic workload during the teaching period, allowing them to engage with the learning scenarios flexibly and at their own pace within the defined timeframe.

All course materials and activities were hosted on the Learning Management System (LMS) Moodle of the University of the Aegean, which served as the central platform for course delivery. The Moodle environment was structured to provide clear navigation, access to the translated learning scenarios, and supporting resources, enabling students to engage autonomously with the asynchronous content and complete the required learning activities.

Summary of participation / quantitative indicators

According to the project proposal and the WP4 guidelines, the target for the blended capacity-building courses was to involve 25 HE academics and 25 HE students, with complete pre- and post-assessment data for each group.

For the HE academics, a total of 35 participants initially enrolled in the blended course. Of these, 25 participants completed both the pre- and post-course questionnaires. In line with the agreed reporting criteria and to ensure comparability across partners, 25 HE academics are therefore reported as the final number of participants, fully meeting the participation target defined in the project proposal.

For the HE students, 35 undergraduate and postgraduate students enrolled in the blended course. Among them, 31 students completed both the pre- and post-course questionnaires. As this number exceeds the minimum requirement, 31 HE students are reported as the final number of participants with complete assessment data, thereby surpassing the target of 25 students.

Overall, the University of the Aegean met or exceeded the quantitative participation targets established in the project proposal for both HE academics and HE students, while also achieving satisfactory completion rates for the pre- and post-assessment instruments.

Real-classroom implementations from HE instructors

Selection of participants (instructors/students) and courses

In line with the project proposal and the guidelines provided by the WP4 leaders, the selection of instructors for the real-classroom implementations at the University of the Aegean followed an open and transparent procedure. An open invitation was addressed to the teaching personnel of the Department of Primary Education, inviting academic staff to express their interest in implementing the INFINITE learning scenarios within their regular teaching activities.

Following this invitation, two instructors voluntarily expressed their interest and were selected to carry out the implementations with students enrolled in their courses. Both instructors are members of the Laboratory and Teaching Staff of the Department of Primary Education and have extensive professional experience in primary education, teacher education, and educational research. In accordance with ethical and data protection considerations, their names are not disclosed in this report; instead, brief professional profiles are provided below.

HE academic 1 is a member of the Laboratory and Teaching Staff of the Department of Primary Education at the University of the Aegean. He holds a doctoral degree from a French university and has a strong academic background in language education, children's and young adult literature, creative writing, and the promotion of reading literacy. Prior to his appointment at the university, he worked for many years as a primary school teacher in public schools and has also held administrative responsibilities at school level. His academic and professional profile combines long-standing classroom experience with active involvement in research and university-based teacher education.

HE academic 2 is also a member of the Laboratory and Teaching Staff of the Department of Primary Education at the University of the Aegean. She holds a doctoral degree in History Education and additional postgraduate qualifications in Educational Sciences and School Psychology. She has extensive experience in primary education, having served for many years as a kindergarten teacher and school head. Her academic work focuses on history education, social sciences, and teacher education, and she has an established research profile, with publications in national and international scientific journals and active participation in academic conferences and professional associations.

Both instructors implemented the INFINITE learning scenarios within courses they were already teaching, engaging students who were enrolled in their regular classes. The classroom activities were based on existing scenarios developed by the INFINITE consortium, which were adapted as needed to fit the disciplinary focus, learning objectives, and practical constraints of real undergraduate courses. This approach ensured that the implementations were fully embedded in authentic educational contexts while remaining aligned with the INFINITE pedagogical framework.

Description of implementations

Two real-classroom implementations were carried out at the Department of Primary Education, University of the Aegean, embedded in undergraduate courses for pre-service primary school teachers. Both implementations integrated AI tools into disciplinary teaching contexts, combining subject-specific learning objectives with the development of AI literacy, critical thinking, and ethical awareness, as promoted by the INFINITE project.

Implementation 1: Integrating AI in literary creation: From structural analysis to visual storyboarding

The first implementation took place within a course focusing on language education, children's literature, and creative writing, with 26 undergraduate students participating. The implementation was based on selected INFINITE learning scenarios related to creative and multimodal uses of AI, which were adapted to the context of children's literature and literary analysis.

The learning activities followed the structure proposed in the INFINITE scenarios and combined theoretical input, hands-on experimentation, and reflective discussion. Students were introduced to the concept of AI as a co-pilot in literary creation, alongside ethical guidelines related to academic integrity, copyright, and the principle of "human-in-the-loop". The INFINITE Visualised Framework and the AI Readiness Checklist were systematically used to support critical engagement with AI-generated outputs.

Several AI tools were integrated in line with the adapted scenarios. DeepSeek was used for the structural analysis of classic fairy tales (e.g. Propp's morphological functions), ChatGPT supported creative ideation and narrative transformation, and Gemini / Gemini Storybook were used for multimodal storytelling and visual storyboarding. The implementation culminated in a scenario-based group activity, aligned with the INFINITE framework, in which students collaboratively produced a short children's story through a hybrid process of human drafting, AI-supported expansion, and critical editing.

Implementation 2: Historical culture in the digital age: Integrating AI in history education

The second implementation was conducted within a course related to history education and social sciences, involving 30 undergraduate students. The classroom activities were based on INFINITE learning scenarios focusing on critical and ethical uses of AI in education, which were adapted to the context of history didactics and primary education.

The implementation began with an introduction to AI as part of the historian's digital toolkit, explicitly drawing on the INFINITE project objectives related to digital readiness and ethical awareness. The INFINITE Visualised Framework was used to distinguish between contexts where AI use requires caution (e.g. factual accuracy and source reliability) and those

where it offers pedagogical potential (e.g. narrative construction and historical empathy).

Students engaged in a series of structured activities derived from the INFINITE scenarios and adapted for classroom use. In an activity focusing on historical empathy and multiperspectivity, students used ChatGPT to prompt the AI to adopt the persona of historical figures and conducted simulated interviews, while critically assessing authenticity and bias. In a second activity, Gemini Storybook was used to create illustrated historical narratives suitable for primary school pupils, with explicit attention to identifying anachronisms and inaccuracies in AI-generated images.

A further activity centred on lesson planning and source criticism, where students used DeepSeek to generate draft lesson plans or historical summaries. Using the INFINITE AI Readiness Checklist, students evaluated the AI outputs for bias, hallucinations, missing sources, and pedagogical suitability, and subsequently revised them to ensure historical accuracy and educational value, in line with the learning objectives of the INFINITE scenarios.

Student participation / quantitative indicators

In accordance with the project proposal and the WP4 guidelines, the real-classroom implementations at the University of the Aegean aimed to involve approximately 50 undergraduate students across two classroom-based interventions. Across the two implementations, a total of 56 undergraduate students participated, thereby exceeding the target number defined in the project proposal. Specifically, 26 students attended the course Integrating AI in literary creation: From structural analysis to visual storyboarding, while 30 students participated in the course Historical culture in the digital age: Integrating AI in history education. All participating students were enrolled in the respective courses and took part in the full set of planned classroom activities.

Student feedback was collected immediately after the completion of each implementation. In total, 56 evaluation questionnaires were completed, corresponding to a 100% completion rate. This ensured full coverage of student perspectives and provided a comprehensive dataset for the quantitative and qualitative evaluation of the classroom implementations within WP4. Overall, the classroom implementations not only met but surpassed the participation targets established in the project proposal, while also achieving full response rates for the evaluation instruments.

Evaluation and assessment findings

Analysis of pre- and post-assessment surveys

In this section describe how the analysis of the surveys was done, data analysis methods and tools used

Results of course evaluation surveys

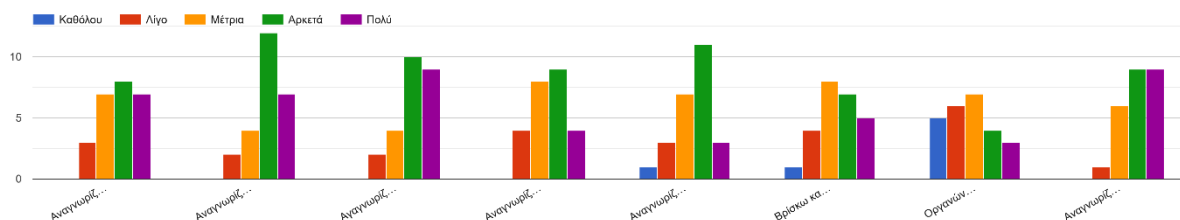
HE Academics

The pre- and post-course evaluation surveys were completed by 25 HE academics, who provided responses to a set of closed-ended items measuring knowledge and skills related to AI in education, as well as attitudes towards the use of AI in teaching, research, and assessment. All items were rated on a 5-point Likert scale.

The analysis below presents a descriptive comparison of pre- and post-test response patterns, with the aim of identifying shifts in self-reported confidence and attitudes following participation in the blended capacity-building course.

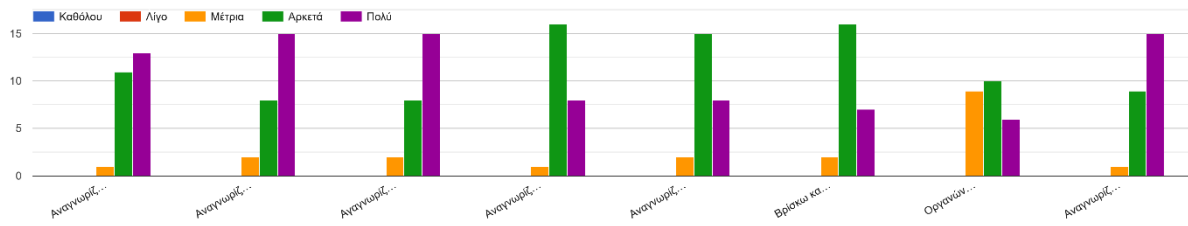
Knowledge and skills

Σε ποιο βαθμό θεωρείτε πως μπορείτε να επιτελείτε τις παρακάτω ενέργειες:



In the pre-test, HE academics' responses in the knowledge and skills category were predominantly concentrated around the lower to middle range of the scale. Participants reported moderate confidence in recognising basic concepts related to AI in education and in understanding its general educational value. However, items related to practical pedagogical application, such as finding and evaluating suitable AI tools, organising teaching activities using AI, and integrating AI into research-related tasks, tended to receive lower ratings. Ethical considerations related to AI were recognised as important, but confidence in addressing them pedagogically was often expressed at a moderate level.

Σε ποιο βαθμό θεωρείτε πως μπορείτε να επιτελείτε τις παρακάτω ενέργειες:

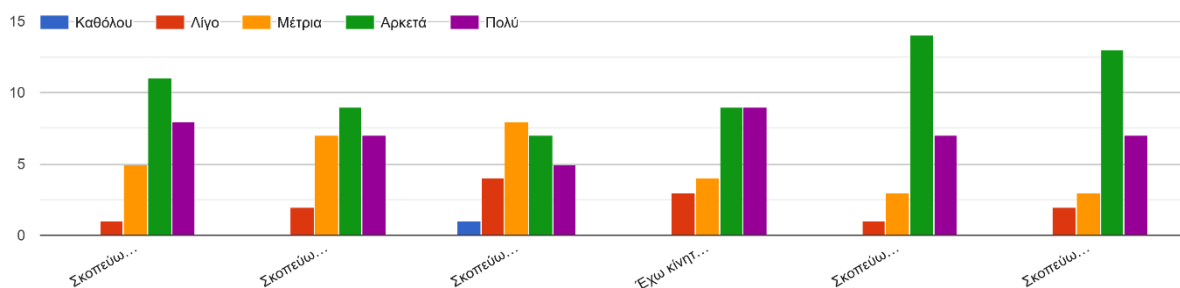


In contrast, the post-test results show a clear shift towards the upper end of the Likert scale across all knowledge and skills items. Most participants reported increased confidence in recognising concepts and applications of AI in teaching, learning, and research, evaluating AI tools based on their benefits and limitations, organising teaching activities that meaningfully integrate AI tools, and identifying and addressing ethical considerations related to AI use.

Post-test responses were more consistently clustered around higher confidence levels, with fewer selections in the lower and middle ranges of the scale. This pattern suggests that the course contributed to strengthening HE academics perceived competence not only at a conceptual level, but also in relation to practical and pedagogical use of AI tools.

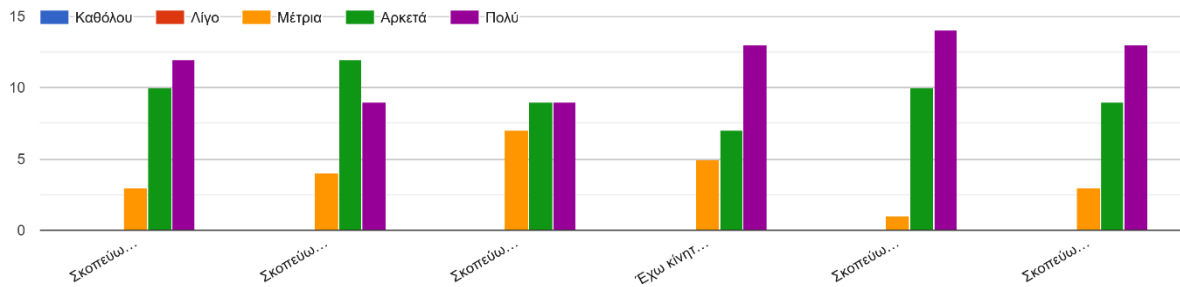
Attitudes towards AI use in higher education

Σε ποιο βαθμό συμφωνείτε με τις παρακάτω δηλώσεις:



Responses in the pre-test revealed a generally cautious stance towards AI use. While many participants expressed interest in learning more about AI and recognised the need for professional development, intentions to actively use AI in teaching, research, or assessment were more mixed. In particular, attitudes towards AI-supported assessment were characterised by relatively low levels of agreement, reflecting concerns related to academic integrity and evaluation practices.

Σε ποιο βαθμό συμφωνείτε με τις παρακάτω δηλώσεις:



In the post-test, attitudes became noticeably more positive, especially regarding continued professional development and responsible AI use. Participants reported stronger intentions to further develop their skills in using AI tools, seek additional training opportunities related to AI in education and AI ethics, and adapt their teaching practices in response to the changes introduced by AI technologies.

At the same time, responses related to using AI in assessment and research remained more nuanced. Although post-test ratings in these areas were generally higher than in the pre-test, they continued to show greater variation compared to items related to learning, teaching, and professional development. This suggests that, while the course increased awareness and openness, HE academics maintained a reflective and critical stance towards AI use in high-stakes academic practices.

Overall comparison

The comparison of pre- and post-test results indicates a substantial positive shift in HE academics' self-reported knowledge, skills, and attitudes following participation in the blended capacity-building course. The most pronounced changes were observed in areas related to practical pedagogical integration, ethical awareness, and confidence in evaluating AI tools. Rather than fostering uncritical adoption, the course appears to have supported the development of informed, reflective, and pedagogically grounded approaches to AI use in higher education.

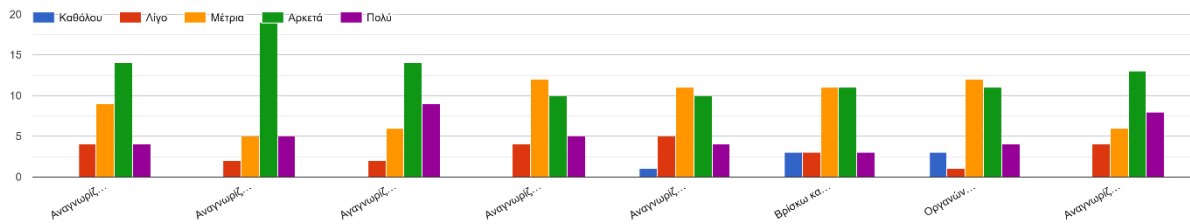
HE students

The pre- and post-course evaluation surveys were completed by 31 HE students, who provided responses to a set of closed-ended items measuring knowledge and skills related to AI in education, as well as

attitudes towards the use of AI in learning, research, and academic work. All items were rated on a 5-point Likert scale. The analysis below presents a descriptive comparison of response patterns before and after participation in the blended capacity-building course.

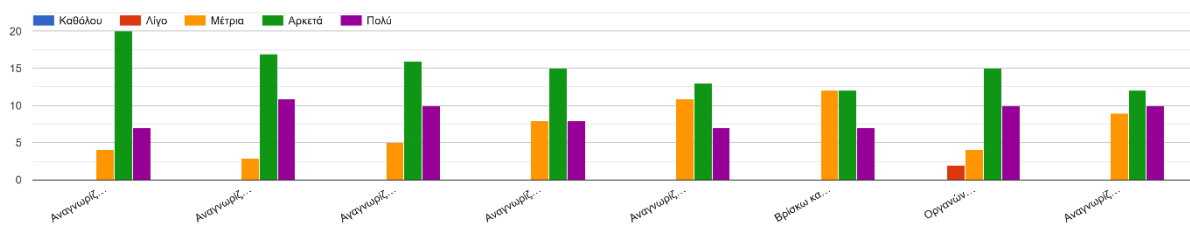
Knowledge and skills

Σε ποιο βαθμό θεωρείτε πως μπορείτε να επιτελείτε τις παρακάτω ενέργειες:



In the pre-test, students' responses in the knowledge and skills category showed considerable variability, with most ratings concentrated in the middle range of the Likert scale. Students generally reported moderate confidence in recognising basic concepts related to AI in education and in understanding its educational value. Items related to practical application, such as organising one's own learning using AI tools and evaluating AI-generated outputs, tended to receive lower confidence ratings, indicating uncertainty about how to use AI effectively and responsibly in academic contexts.

Σε ποιο βαθμό θεωρείτε πως μπορείτε να επιτελείτε τις παρακάτω ενέργειες:



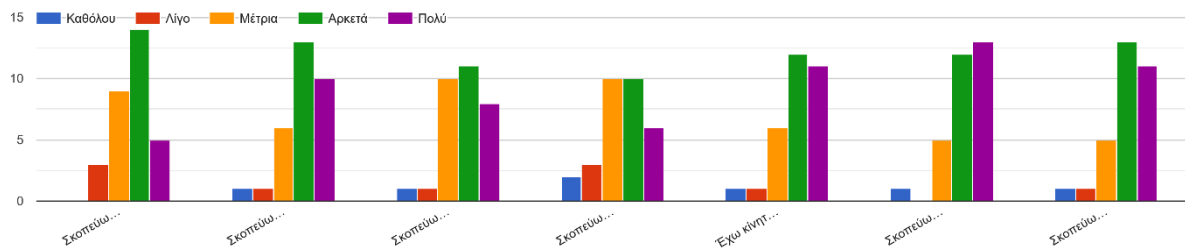
In the post-test, a clear shift towards higher confidence levels was observed across almost all knowledge and skills items. Students reported increased confidence in recognising applications of AI in learning and research, identifying benefits and limitations of different AI tools, critically evaluating AI-generated content, and recognising ethical considerations related to AI use in higher education.

The most pronounced improvement was observed in items related to ethical awareness and critical evaluation, suggesting that the course

effectively supported the development of reflective AI literacy rather than purely technical competence. Confidence related to organising learning using AI tools also increased in the post-test, although responses in this area remained slightly more dispersed compared to other items, indicating ongoing caution in fully integrating AI into personal learning strategies.

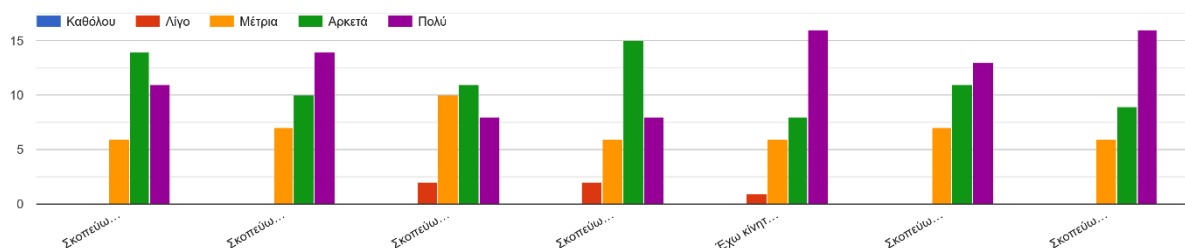
Attitudes towards AI use in learning and studies

Σε ποιο βαθμό συμφωνείτε με τις παρακάτω δηλώσεις:



In the pre-test, student attitudes towards AI were generally cautious but open. While many students expressed interest in using AI tools for learning and research, intentions to use AI for essays, assignments, and deliverables were more mixed. At the same time, students demonstrated a strong interest in learning more about AI and in understanding its ethical implications, as reflected in relatively positive responses to items related to future training and skill development.

Σε ποιο βαθμό συμφωνείτε με τις παρακάτω δηλώσεις:



The post-test results indicate a shift towards more informed and differentiated attitudes. Students reported stronger agreement with statements related to further developing their AI-related skills, participating in additional training opportunities, and deepening their understanding of ethical and responsible AI use.

At the same time, attitudes towards the practical use of AI for assessed academic work remained more nuanced. Although post-test ratings were

generally higher than in the pre-test, responses continued to show variation, reflecting a deliberate and reflective stance towards academic integrity, authorship, and acceptable use. This pattern suggests that students did not adopt AI uncritically but rather developed a more balanced understanding of when and how AI tools may be appropriate.

Overall comparison

Overall, the comparison between pre- and post-test results demonstrates a consistent positive shift in HE students' self-reported knowledge, skills, and attitudes following participation in the blended course. The most substantial changes were observed in areas related to ethical awareness, critical evaluation of AI outputs, and confidence in understanding AI's role in learning and research. Rather than encouraging routine or unreflective AI use, the course appears to have supported the development of critical, responsible, and context-sensitive approaches to AI use among students.

Feedback from classroom implementations

Feedback from HE Academics/Instructors

Following the classroom implementations, the two participating HE instructors provided qualitative feedback through a set of open-ended survey questions. Overall, their responses reflect a highly positive evaluation of the INFINITE learning scenarios, the supporting Toolkit, and the pedagogical approach promoted by the project.

Effective aspects of the AI-based tools and INFINITE materials

In response to the question regarding which aspects of the AI-based tools and materials worked particularly well, both instructors highlighted the INFINITE Learning Scenarios and the Visualised Framework as essential for structuring their teaching. The framework supported intentional pedagogical decision-making, particularly in selecting appropriate AI tools for specific educational purposes, rather than using AI in a generic or undifferentiated way. In both implementations, instructors emphasised that framing AI as a collaborative partner—rather than as a content generator—helped prevent passive student engagement and encouraged critical reflection. Tools such as Gemini Storybook were considered especially effective in transforming abstract concepts into tangible outputs, supporting visualisation in both literary creation and history education.

Challenges encountered and strategies to address them

When asked about the main challenges encountered during the in-class implementation, both instructors reported that students initially tended to trust AI-generated outputs uncritically, particularly with regard to cultural nuance in literary texts and factual accuracy in historical narratives. Issues such as generic or homogenised language, hallucinated references, anachronisms, and biased or simplified interpretations were identified as recurring concerns. Rather than treating these issues as failures, the instructors deliberately integrated them into the learning process. Drawing on the AI Readiness Checklist and the ethical guidelines of the INFINITE Toolkit, classroom activities were adapted to foreground critical AI literacy, requiring students to verify outputs against authoritative sources, assess bias, and revise AI-generated content through informed human judgment.

Impact on student engagement and learning outcomes

Regarding the overall impact of AI tools on student engagement and learning outcomes, both instructors reported very high levels of student engagement and strong alignment with the intended learning objectives. The use of multiple AI systems (e.g. ChatGPT, DeepSeek, Gemini) enabled students to compare different model behaviours, fostering a deeper understanding of how AI tools function and where their limitations lie. According to the instructors, this comparative approach contributed significantly to students' development of digital resilience, ethical awareness, prompt-design skills, and critical evaluation abilities. In the history-focused implementation, particular emphasis was placed on the development of historical empathy and multiperspectivity, while in the literature-focused implementation, attention was drawn to students' improved ability to critically shape narrative voice and stylistic quality.

Suggestions for improving the INFINITE course and future implementations

In response to the question on possible improvements, both instructors provided constructive recommendations. They suggested expanding the INFINITE repository with more discipline-specific examples for the Humanities and Social Sciences, including prompt libraries tailored to literary analysis, creative writing, and historical inquiry. In addition, both instructors emphasised the need for clearer guidance on assessment redesign, particularly in relation to evaluating hybrid outputs produced through human–AI collaboration. Further suggestions included strengthening the critical dimension of the training through more explicit

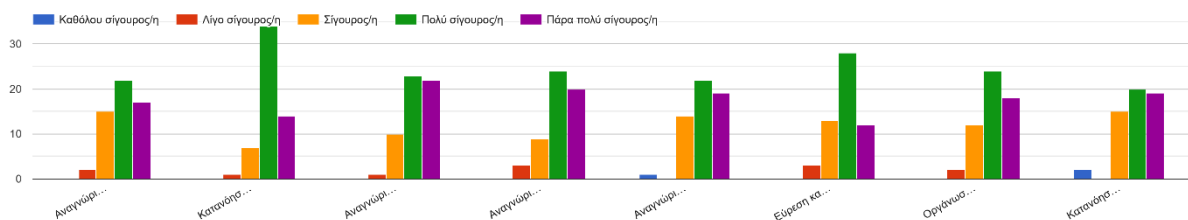
guidance on ethical challenges and controversial topics specific to different disciplinary contexts. contexts.

Feedback from students

Following the completion of the two classroom implementations, all 56 participating undergraduate students completed the post-implementation questionnaire, resulting in a 100% response rate. The questionnaire consisted of three thematic categories: Knowledge and skills, Attitudes, and Overall evaluation of the classroom activities. Responses were collected using a 5-point Likert scale.

Knowledge and skills

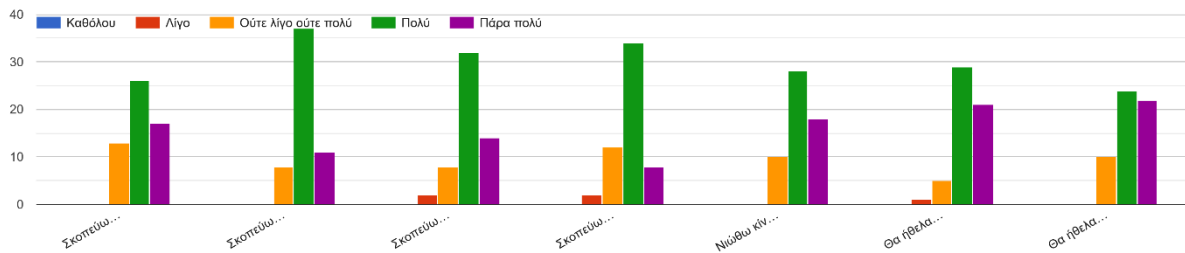
Ενότητα 1. Γνώσεις και δεξιότητες Αφού συμμετείχατε στις δραστηριότητες του μαθήματος, πόσο σίγουροι/ες νιώθετε για τα παρακάτω;



Students reported high levels of perceived confidence across most items related to AI literacy, following their participation in the classroom activities. Responses were particularly strong in areas related to understanding the educational value of AI tools, recognising their applications in learning and research, and identifying ethical considerations associated with AI use. A consistent pattern across responses indicates that students felt more confident in their ability to critically evaluate AI-generated content, understand the benefits and limitations of different AI tools, and recognise ethical risks such as bias, and inappropriate use in educational contexts. Slightly more moderate confidence levels were reported for items related to organising and managing one’s own learning using AI tools, suggesting that while students developed awareness and evaluative skills, they were still cautious about fully integrating AI into their personal learning processes. This pattern aligns with the pedagogical emphasis of the implementations, which foregrounded critical engagement and reflective use rather than instrumental adoption.

Attitudes towards AI use in learning

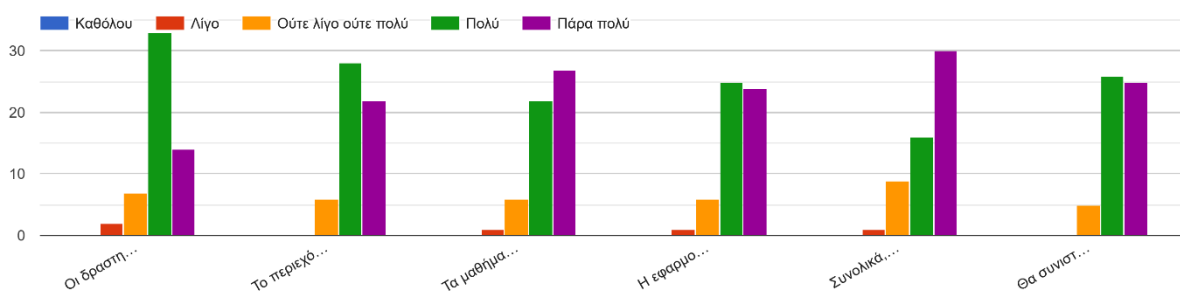
Ενότητα 2. Στάσεις Αφού συμμετείχατε στις δραστηριότητες του μαθήματος, σε ποιο βαθμό συμφωνείτε με τις ακόλουθες δηλώσεις;



Student attitudes towards AI use in education were generally positive but nuanced. Most respondents expressed a strong willingness to further develop their skills in using AI tools, participate in additional training related to AI in education, and deepen their understanding of ethical issues and responsible AI use. At the same time, attitudes towards using AI tools for essays, assignments, and research activities were more varied. While many students indicated openness to such uses, a substantial proportion expressed moderate agreement, reflecting a cautious stance. This suggests that students were actively negotiating the boundaries between acceptable and problematic AI use, particularly in relation to academic integrity and authorship.

Evaluation of the classroom activities

Ενότητα 3. Αξιολόγηση Παρακαλώ δηλώστε το επίπεδο συμφωνίας σας με τις ακόλουθες δηλώσεις σχετικά με τις δραστηριότητες στις οποίες συμμετείχατε στα πλαίσια του μαθήματος



Students evaluated the classroom implementations very positively across all evaluation items. High levels of agreement were reported regarding the overall quality of the in-class learning experience, the extent to which the activities were engaging and interactive, the encouragement of active participation and collaboration, and the achievement of the intended learning objectives.

Most students also indicated that they would recommend the classroom activities and materials to other students, reflecting high overall satisfaction. The relevance of the content to their studies was rated positively across both implementations, although, in some cases, slightly more moderate responses were observed, likely reflecting differences in students' disciplinary interests and prior experience with digital tools.

Taken together, the evaluation results suggest that the classroom implementations were perceived as effective, engaging, and pedagogically meaningful, supporting both disciplinary learning and the development of AI literacy competencies among pre-service teachers.

Challenges, lessons learned and recommendations

Challenges (operational/logistical/pedagogical/technical)

Overall, the implementation of WP4 at the University of the Aegean progressed smoothly and met the objectives defined in the project proposal. Nevertheless, several challenges emerged during the delivery of the blended capacity-building courses and the real-classroom implementations.

From an operational and logistical perspective, participant recruitment and sustained engagement required careful planning. HE academics face heavy workloads that combine teaching, research, supervision, and administrative duties. Although initial enrolment exceeded the project targets, completion of both pre- and post-assessment questionnaires required additional reminders and follow-up communication. Similarly, for students, balancing participation in AI-related activities with existing coursework obligations required flexibility in scheduling and delivery.

From a pedagogical perspective, a key challenge concerned participants' initial expectations towards AI tools. Both students and HE academics tended, at early stages, to either overestimate AI capabilities or seek definitive guidance on “correct” or “permitted” uses of AI in education. This was particularly evident in relation to assessment, academic writing, and historical accuracy. Managing these expectations required continuous emphasis on critical AI literacy, reflection, and the principle of human oversight, rather than providing fixed rules.

At the classroom level, instructors reported that students initially displayed a tendency to trust AI-generated outputs uncritically, especially in relation to narrative voice in literary texts and factual accuracy in historical content. Issues such as hallucinations, generic language, bias, and anachronisms emerged during hands-on activities. While pedagogically valuable, these issues required instructors to adapt their teaching dynamically and devote additional time to verification and discussion.

Finally, technical and ethical challenges were also observed. Some AI tools required account creation or raised concerns related to data privacy, transparency, and compliance with institutional or national regulations. Additionally, the rapid evolution of AI tools meant that some participants experienced uncertainty regarding tool reliability, long-term availability, and alignment with academic values.

Lessons learned from implementation

The implementation of WP4 in Greece generated several important lessons that can inform future capacity-building initiatives related to AI in higher education.

A key lesson concerns the importance of pedagogical framing. When AI tools were embedded within clearly structured learning scenarios—supported by the INFINITE Visualised Framework and AI Readiness Checklist—participants were better able to engage critically and meaningfully. Rather than focusing on AI as a productivity tool, framing AI as an object of inquiry and reflection supported deeper learning and reduced uncritical adoption.

Another important lesson relates to the value of comparative use of multiple AI tools. Allowing participants to work with different systems (e.g. ChatGPT, DeepSeek, Gemini) helped them recognise that AI tools are not neutral or interchangeable. This comparative approach supported the development of digital resilience, critical evaluation skills, and a more nuanced understanding of AI limitations and affordances.

The implementation also demonstrated that ethical and critical dimensions resonate strongly with both students and HE academics. Discussions around bias, hallucinations, authorship, academic integrity, and historical representation were consistently identified as meaningful and engaging. Rather than discouraging AI use, these discussions supported more informed and responsible attitudes.

Finally, the experience confirmed that AI literacy training can serve as a catalyst for broader pedagogical reflection. For HE academics, engagement with AI prompted reconsideration of assessment practices, learning objectives, and disciplinary norms. For students, particularly pre-service teachers, the activities supported reflection on their future professional roles and the responsible integration of AI in school education.

Recommendations for future implementations

Based on the challenges encountered and lessons learned, several recommendations can be formulated for future implementations of WP4-related activities in Greece and similar higher education contexts.

First, future implementations should maintain a strong emphasis on critical AI literacy, ensuring that ethical considerations, verification practices, and human judgment remain central components of all learning activities. AI tools should be presented as supports for learning and reflection, not as authoritative sources.

Second, it is recommended to expand discipline-specific resources, particularly for the Humanities and Social Sciences. Prompt libraries, case studies, and examples tailored to areas such as literature, history, and teacher education would further enhance relevance and applicability.

Third, assessment practices require explicit attention. Future training should include concrete guidance on redesigning assessment in AI-rich environments, addressing hybrid outputs, academic integrity, and transparent evaluation criteria.

Fourth, when possible, institutions should reduce technical and ethical barriers to participation, for example by offering institutional access to tools, proposing alternatives that do not require personal accounts, or allowing observation-based engagement when tool use is restricted.

Finally, flexibility in delivery formats should be preserved. While blended and asynchronous formats support accessibility, face-to-face interaction proved particularly valuable for discussion, peer learning, and ethical reflection. A context-sensitive balance between online and onsite activities is therefore recommended.

UNIC (University of Nicosia) & CARDET National Report

Executive summary

This national report presents the implementation and evaluation of Work Package 4 (WP4): AI Capacity Building and Courses of the *INFINITE* project in Cyprus. This Work Package aims to strengthen artificial intelligence (AI) literacy among higher education (HE) academics and students by designing, delivering, and evaluating blended learning courses grounded in scenario-based pedagogy and ethical use of AI. The Cypriot implementation was carried out at the University of Nicosia and the Global College during the period September–December 2025, following the common framework and in alignment with the project's overall objectives.

Two blended courses were implemented: one for HE academics and one for HE students. Both courses were delivered in a fully asynchronous, self-paced format on the University of Nicosia's Moodle platform to make sure that flexibility and accessibility were available for the participants. All learning materials, including scenario-based activities and supporting resources, were provided to participants at the outset of the course. The design of the courses adhered to the instructional approach, emphasising real-life scenarios, practical engagement with AI tools, and reflection on ethical considerations related to AI use in HE contexts. Course materials were locally adapted and delivered in Greek, while they maintained consistency with the shared structure and learning outcomes.

The blended courses were based on scenario-based learning activities developed by project partners and covering diverse HE contexts. The scenarios addressed practical use cases of AI tools in teaching, learning, research, and professional practice, and were aligned with the WP4 instructional framework and ethical AI principles.

The participation in the courses followed strict ethical procedures. All quantitative data presented in this report are based exclusively on participants who provided informed consent to participate in the research component of the project. For HE academics, the evaluation included 51 consented pre-course survey responses and 37 consented post-course survey responses, with 29 matched pre–post responses. For HE students, 25 consented pre-course, and 30 consented post-course responses were

recorded. Any responses showing non-consent were excluded from analysis and reporting.

The courses were evaluated through pre- and post-assessment surveys and course evaluation questionnaires, focusing on self-reported confidence, attitudes, and intentions regarding AI use. The findings indicate a consistent positive tendency across both target groups. The HE academics reported increased confidence in recognising AI concepts, understanding the educational value of AI tools, and identifying AI applications in teaching, learning, and research. Similarly, HE students demonstrated improved confidence in using AI tools for learning, organising their academic work, and recognising the ethical considerations associated with AI use.

In addition, the results suggest positive shifts in attitudes and intentions. Both academics and students expressed a remarkable willingness to integrate AI tools into their professional and learning practices and a greater motivation to further develop their AI-related skills. The evaluation data also highlight a strong interest in continuing professional development and further training, particularly regarding ethical challenges and the responsible use of AI.

Overall, the findings presented in this report suggest that the blended courses implemented in Cyprus improved AI literacy among participating HE academics and students and supported more informed and reflective engagement with AI tools in HE. While the results are based on self-reported data and do not aim to establish causal relationships, they provide valuable insights into participants' perceived learning outcomes and readiness to engage with AI in academic contexts. The experience gained through this implementation offers useful lessons for future capacity-building initiatives and supports the broader objectives of the INFINITE project to promote ethical, effective, and sustainable integration of AI in HE.

In addition to the blended capacity-building courses, the INFINITE WP4 implementation in Cyprus included face-to-face classroom implementations designed to translate AI literacy into practice through guided, scenario-based learning. These classroom sessions were conducted at Global College by two HE instructors and involved approximately 50 undergraduate students. The implementations focused on selected AI learning scenarios aligned with the WP4 instructional framework and ethical AI principles.

Each classroom implementation consisted of two real-world AI scenarios, delivered through structured, interactive activities lasting 120 minutes per scenario. The sessions emphasised active student participation, collaborative problem-solving and critical reflection on the use of AI tools in academic and professional contexts. By embedding the scenarios within regular course activities, the classroom implementations demonstrated the feasibility of integrating AI-supported learning into existing HE curricula.

Evaluation findings from the classroom implementations indicate positive levels of student engagement, perceived relevance and satisfaction with the learning activities. Students reported increased confidence in applying AI tools to support their learning, greater awareness of ethical considerations and a stronger ability to critically evaluate AI-generated outputs. Instructors similarly highlighted the value of scenario-based, face-to-face activities in supporting discussion, clarification and reflective use of AI tools.

Overall, the classroom implementations complemented the blended learning component by providing contextualised, practice-oriented learning experiences that reinforced AI literacy outcomes. Together, the blended courses and classroom sessions contributed to a coherent and pedagogically sound approach to AI capacity building in HE, supporting the broader objectives of WP4 and the INFINITE project.

Implementation of the blended capacity-building courses

Course delivery for HE academics

In Cyprus, the blended course for HE academics was implemented at the University of Nicosia and the Global College and delivered in a fully asynchronous, self-paced format. Participants were provided with the complete set of learning materials required to complete the course independently, including the scenario-based learning activities and all supporting resources foreseen under WP4.

The course design followed the WP4 instructional framework, which is grounded in scenario-based learning and focuses on strengthening AI literacy for professional and pedagogical practices, with explicit attention to ethical considerations in the use of AI tools. The AI tools explored by participants were those embedded within the official WP4 learning scenarios, as described in the WP4 implementation guidelines.

For the local implementation, learning materials were adapted and delivered in Greek, while maintaining alignment with the common WP4 structure and objectives. This national report is provided in English.

Participant demographics and recruitment

The course targeted HE academics, primarily teachers and lecturers affiliated with the University of Nicosia and Global College.

Recruitment was carried out through a combination of personal outreach and institutional communication. For the University of Nicosia, the process followed a phased internal strategy. Initial recruitment was conducted through internal institutional channels, primarily via mass email distributions and posts on university forums to ensure broad visibility among the academic body. To transition from initial interest to firm commitment, this was followed by personalised telephone communication. These direct follow-ups served as a consistent touchpoint, guiding participants through the registration process and addressing specific queries until their recruitment was successfully completed. For the Global College, initial contact was established through phone calls and direct communication with the administrative and academic offices at Global College, which allowed for verbal presentation of the project aims and the training activities and aim. This was followed by email communication providing detailed information about the project and the

blended course, along with all related instructions. Subsequently, a designated academic contact and coordinator at Global College compiled and shared a list of interested teaching staff who wished to participate.

Based on the consented survey data:

- Pre-course (entry) survey responses: **51**
- Post-course (exit) survey responses: **37**
 - One post-course response explicitly indicated non-consent and was excluded from analysis and reporting.
- Matched (paired) pre–post responses: **29** participants

Only participants who provided informed consent are included in all analyses and reporting.

Delivery timeline

The course was hosted on the University of Nicosia's Moodle platform, which served as the central learning environment for accessing materials and completing activities. Participants engaged with the AI tools embedded in the WP4 learning scenarios, as specified in the official documentation, and used these tools for the scenario-based tasks provided.

Tools and resources used

Participants were supported through the WP4 learning package, including:

- Scenario-based learning materials (real-case scenarios and activities)
- Supporting course resources and materials provided to participants to enable self-paced completion

Course delivery for HE students

Content design and development/course adaptation and localisation

In Cyprus, the blended course for HE students was implemented at the University of Nicosia and delivered in a fully asynchronous, self-paced format, exactly like the HE staff and academics. Students were provided with all learning materials required to complete the course independently, including scenario-based learning activities and supporting resources.

The course design followed the common instructional framework, grounded in scenario-based learning, and aimed to strengthen students' AI literacy for learning and academic practices, while fostering critical awareness of ethical considerations related to the use of AI tools. Students engaged with the AI tools embedded within the official learning scenarios, as described in the implementation guidelines.

For the local delivery, course materials were adapted and delivered in Greek, while maintaining full alignment with the shared WP4 structure, learning outcomes, and objectives. This national report section is provided in English.

Participant demographics and recruitment

The course targeted HE students enrolled at the University of Nicosia.

Recruitment was carried out through internal institutional channels, primarily via mass email distributions and posts on university forums to ensure broad visibility among the student body. To transition from initial interest to firm commitment, this was followed by personalised telephone communication. Only students who expressed interest and provided informed consent participated in the course and the associated evaluation activities.

All reporting and analysis include only participants who provided consent to participate in the research component of the project.

Based on the consented survey data:

- Pre-course (entry) survey responses (consented): **25**
- Post-course (exit) survey responses (consented): **30**
 - One pre-course response and two post-course responses explicitly indicating non-consent were excluded from all analysis and reporting.

Only students who provided informed consent participated in the evaluation and are included in the reported data.

Delivery timeline

The blended course for HE students was implemented during September–December of 2025, in parallel with the course for HE academics. Due to scheduling constraints and the need to ensure

accessibility and flexibility for students, the course was delivered entirely asynchronously, allowing participants to complete the learning activities at their own pace.

Tools and resources used

The course was hosted on the University of Nicosia's Moodle platform, which served as the primary learning environment for accessing materials and completing activities. Students engaged with the AI tools embedded within the learning scenarios, as specified in the official documentation, and applied these tools in relation to the scenario-based tasks provided.

Summary of participation / quantitative indicators

The blended capacity-building courses in Cyprus were implemented at the University of Nicosia and Global College and addressed both HE academics and HE students. Participation figures reported below are based exclusively on participants who provided informed consent to participate in the research component of the project. Any responses indicating non-consent were excluded from all analyses and reporting.

Participation overview

HE academics

- Pre-course (entry) survey responses (consented): **51**
- Post-course (exit) survey responses (consented): **37**
 - One post-course response indicating non-consent was excluded.
- Matched pre–post responses: **29**

HE students

- Pre-course (entry) survey responses (consented): **25**
- Post-course (exit) survey responses (consented): **30**
 - One pre-course and two post-course responses indicating non-consent were excluded.

Delivery mode indicators

- Delivery format: Fully asynchronous, self-paced

- Course duration: September–December 2025
- Learning environment: Moodle (University of Nicosia)
- Synchronous sessions: None

Ethical compliance

All participation and evaluation activities were conducted in line with ethical research standards. Only participants who explicitly consented to take part in the research were included in the reported data. No personal or identifying data were collected or reported.

Real-classroom implementations from HE instructors

Selection of participants (instructors/students) and courses

The classroom implementations in Cyprus were carried out at Global College by two HE instructors, Giorgos Markatos and Leonidas Neocleous, both actively involved in teaching undergraduate-level courses with a strong focus on applied, practice-oriented learning.

Both instructors teach courses related to business, management, digital skills and professional practice, where the use of digital tools, critical thinking and problem-solving are core components of the curriculum. Their teaching profiles align well with the objectives of the WP4 concept, particularly in relation to preparing students to engage critically and ethically with emerging technologies such as AI in real-world professional contexts.

Their experience in delivering applied HE programmes provided a suitable pedagogical environment for piloting the INFINITE AI scenarios, allowing students to explore AI tools not as abstract technologies but as practical supports for learning, decision-making and professional development.

Description of implementations

- The classroom implementation took place within regular course sessions at Global College and was integrated into the instructors' existing teaching activities. The implementation followed the scenario-based approach defined in WP4, in line with the project guidelines and Merrill's Principles of Instruction.

- The instructors selected real-case AI learning scenarios from the INFINITE WP4 repository that were most relevant to their course objectives and student profiles. The scenarios focused on the practical use of AI-based tools to support learning, content creation, information analysis and reflective decision-making, while explicitly addressing ethical considerations, such as responsible use, data awareness and critical evaluation of AI-generated outputs.
- During the implementation, students were introduced to the scenario context and learning objectives, followed by guided exploration of selected AI tools. Activities included individual and small-group tasks, scenario-driven problem-solving exercises, and reflective discussions on the affordances and limitations of AI in academic and professional settings. Emphasis was placed on active student participation, experimentation with tools, and connecting AI use to authentic learning and workplace-related situations.
- The scenarios were embedded either as standalone learning activities or as part of broader course assignments, allowing students to apply AI tools directly to tasks relevant to their field of study. Reflection and feedback activities were incorporated to support students' critical AI literacy development and to encourage responsible, informed use of AI technologies.

Student participation / quantitative indicators

The real-classroom implementations at Global College involved two HE instructors and were conducted through face-to-face teaching sessions, each centred on selected AI learning scenarios developed within WP4.

A total of approximately 50 HE students participated in the classroom implementations, with each instructor delivering scenario-based activities to a group of approximately 25 students. Each implementation included two AI learning scenarios, with a duration of 120 minutes per scenario, resulting in a total of 240 minutes of in-class AI-supported learning per student group.

Participation in the classroom implementations was embedded within regular course activities. Attendance was monitored through attendance sheets collected during each session. All participating students were invited to complete the post-implementation student evaluation survey, which focused specifically on their experience of the in-class

scenario-based activities and the use of AI tools in a face-to-face learning context.

Quantitative indicators for the classroom implementations include:

- Number of instructors involved: 2
- Number of students participating: more than 50
- Number of scenarios implemented: 2
- Duration per scenario: 120 minutes
- Total classroom implementation time per group: 240 minutes
- Delivery mode: Face-to-face, scenario-based learning

These indicators confirm that the classroom implementations met the quantitative targets set for WP4 at national level and provided sufficient exposure to AI-supported learning activities in authentic HE settings.

Evaluation and assessment findings

Analysis of pre- and post-assessment surveys

The analysis of the pre- and post-assessment surveys was conducted using descriptive statistical methods, focusing on changes in participants' self-reported confidence, attitudes and intentions related to the use of AI tools in HE. Data were collected through structured online questionnaires using five-point Likert-scale items (1 = not at all, 5 = to a very large extent).

Only responses from participants who explicitly provided informed consent were included in the analysis. Pre- and post-course responses were analysed separately and, where possible, matched at participant level to allow for a comparative interpretation of trends. The analysis aimed to capture perceived changes in AI-related knowledge, skills and readiness rather than to establish causal effects.

Results of course evaluation surveys

HE Academics

This section presents a comparative analysis of pre- and post-assessment survey data collected from HE academics and HE students who participated in the WP4 blended courses in Cyprus. The analysis focuses on

changes in self-reported confidence, attitudes, and intentions related to the use of AI tools in HE contexts. Results are based exclusively on responses from participants who provided informed consent and are reported using descriptive statistics derived from five-point Likert-scale items. While the findings do not aim to establish causal relationships, they provide valuable insights into perceived changes in AI-related knowledge, skills, and readiness following participation in the course.

Πόσο σίγουροι/-ες αισθάνεστε για τα ακόλουθα; (1 για "Καθόλου" - 5 για "Σε πολύ μεγάλο βαθμό"),

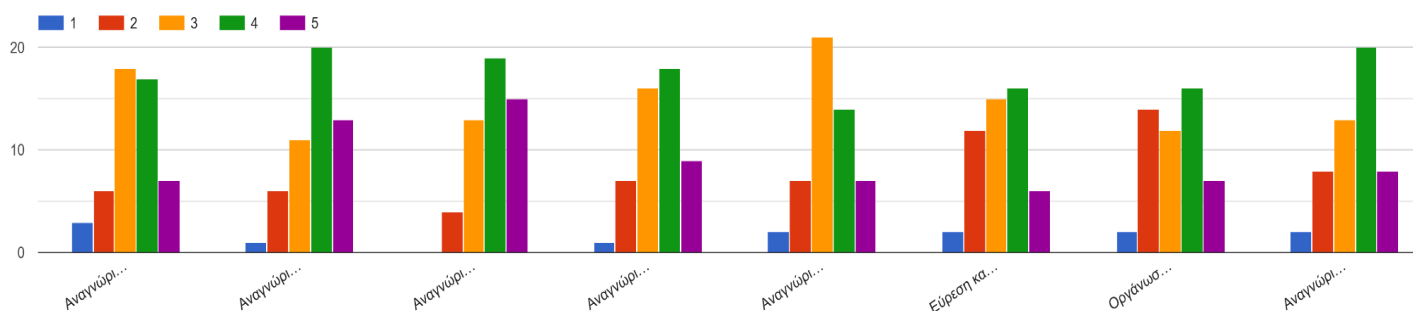


Chart 1.1. The chart presents HE academics' self-reported confidence levels across a range of AI-related knowledge and skills areas, measured on a five-point Likert scale (1 = not at all, 5 = to a very large extent), before the blended learning course. Overall, responses indicate moderate to high levels of confidence across all items, with higher scores observed in areas related to recognising the educational value and applications of AI tools, and comparatively lower scores in areas related to evaluating AI tools and organising teaching activities using AI. These findings reflect varying levels of familiarity and practical readiness among participants and provide a baseline for interpreting changes observed in post-course measurements.

It translates as:

How confident do you feel about the following? (1 = Not at all, 5 = To a very large extent)?

- Recognising concepts related to AI in education
- Recognising the educational value of AI tools
- Recognising the benefits and challenges of AI tools in everyday tasks
- Recognising applications of AI tools in teaching and learning
- Recognising applications of AI tools in research
- Finding and evaluating AI tools based on benefits and challenges
- Organising teaching activities using AI tools

Σε ποιο βαθμό συμφωνείτε με τις ακόλουθες δηλώσεις; (1 για "Καθόλου" - 5 για "Σε πολύ μεγάλο βαθμό"),

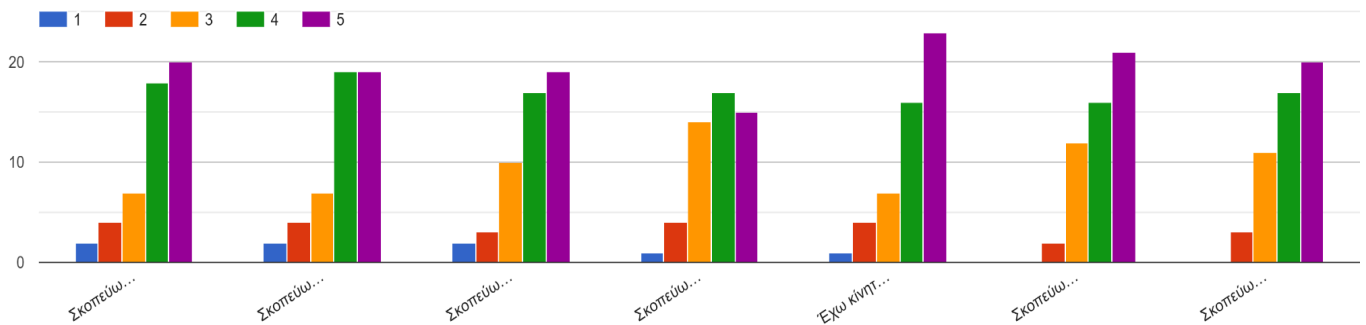


Chart 1.2. Knowledge & skills confidence (pre)

Πόσο σίγουροι/-ες αισθάνεστε για τα ακόλουθα; ,

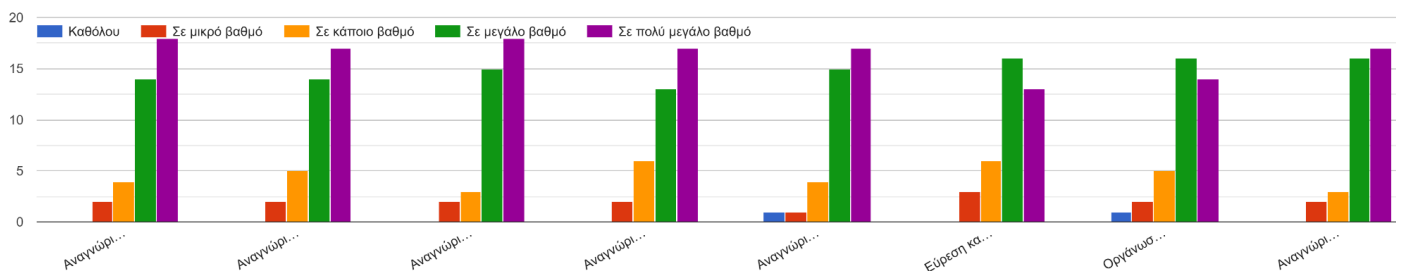


Chart 1.3. Knowledge & skills confidence (post)

Charts 1.1 and 1.2. These charts illustrate changes in HE academics' attitudes and intentions toward using AI tools in their professional practice before and after the WP4 course. The results indicate a generally positive shift in participants' intentions to integrate AI into teaching, research, and assessment. Increased post-course agreement is also evident in motivation to further develop AI-related skills and to pursue additional professional development, including training on ethical challenges. These findings indicate that, beyond knowledge acquisition, the course positively influenced participants' readiness and willingness to engage with AI in HE contexts.

It translates as:

To what extent do you agree with the following statements? (1 = Not at all, 5 = To a very large extent)

Items- translated:

- I intend to adapt my teaching practices to accommodate changes brought by AI tools
- I intend to use AI in my teaching
- I intend to use AI in my research
- I intend to use AI in my assessment practices
- I am motivated to further develop my skills in using AI tools
- I intend to seek further professional development in AI in education
- I intend to seek further training on ethical challenges related to AI

Σε ποιο βαθμό συμφωνείτε με τις ακόλουθες δηλώσεις; (1 για "Καθόλου" - 5 για "Σε πολύ μεγάλο βαθμό"),

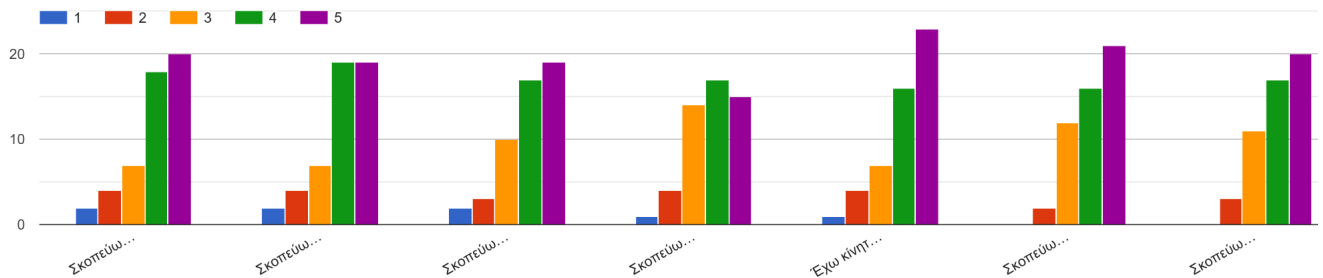


Chart 1.4. Attitudes & intentions towards AI (PRE)

Σε ποιο βαθμό συμφωνείτε με τις ακόλουθες δηλώσεις;

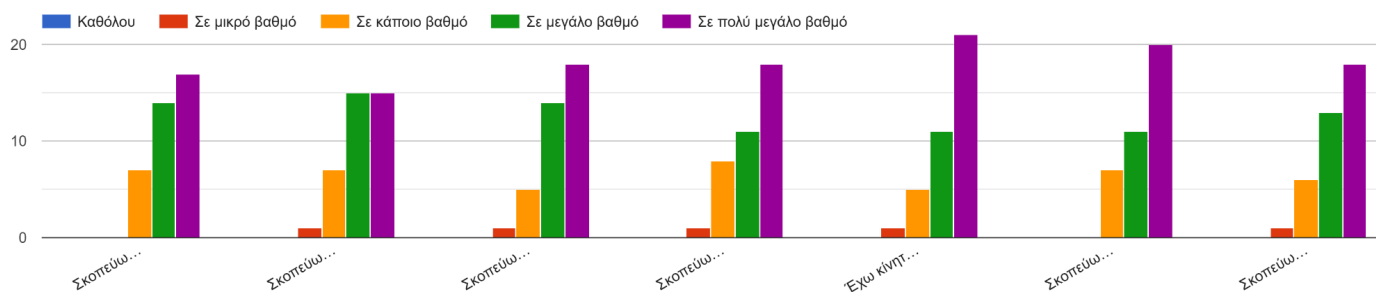


Chart 1.5. Attitudes & intentions towards AI (POST)

These charts illustrate changes in HE academics' attitudes and intentions toward using AI tools in their professional practice before and after the WP4 course. The results indicate a generally positive shift in participants' intentions to integrate AI into teaching, research, and assessment. Increased post-course agreement is also evident in motivation to further develop AI-related skills and to pursue additional professional development, including training on ethical challenges. These findings indicate that, beyond knowledge acquisition, the course positively influenced participants' readiness and willingness to engage with AI in HE contexts.

It translates as:

To what extent do you agree with the following statements? (1 = Not at all, 5 = To a very large extent)

Items:

- *I intend to adapt my teaching practices to accommodate changes brought by AI tools*
- *I intend to use AI in my teaching*
- *I intend to use AI in my research*
- *I intend to use AI in my assessment practices*
- *I am motivated to further develop my skills in using AI tools*
- *I intend to seek further professional development in AI in education*
- *I intend to seek further training on ethical challenges related to AI*

HE students

Πόσο σίγουροι/-ες αισθάνεστε για τα ακόλουθα; (1 για "Καθόλου" - 5 για "Σε πολύ μεγάλο βαθμό")

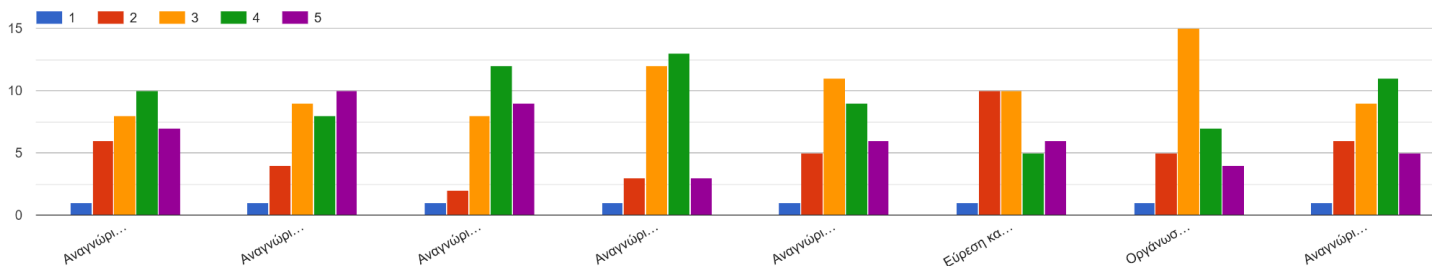


Chart 2.1. Knowledge & skills confidence (pre)

Πόσο σίγουροι/-ες αισθάνεστε για τα ακόλουθα;

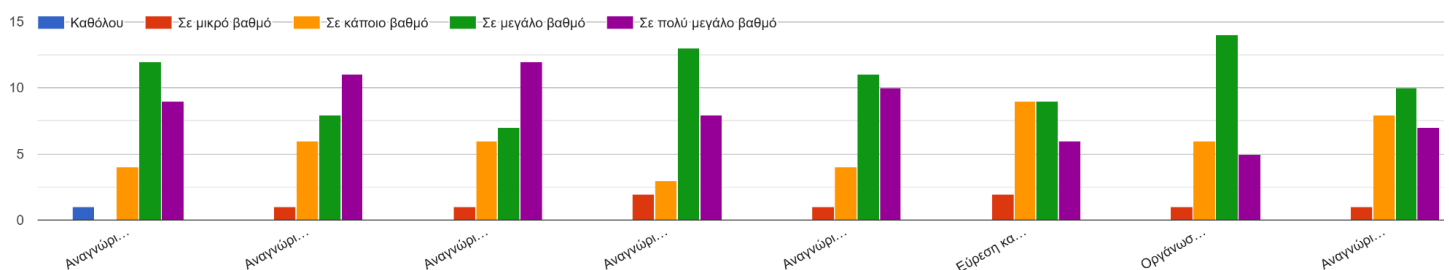


Chart 2.2. Knowledge & skills confidence (post)

The charts present HE students' self-reported confidence levels in relation to AI-related knowledge and skills before and after completing the WP4 blended course. Results demonstrate an overall increase in confidence across all areas following the course. Notable improvements are observed in students' ability to recognise the educational value and applications of AI tools for learning, as well as in organising their learning using AI tools. The findings suggest that the course

supported the development of students' practical AI literacy and critical awareness of AI use in academic contexts.

It translates as:

How confident do you feel about the following? (1 = Not at all, 5 = To a very large extent). Items:

- Recognising concepts related to AI in education
- Recognising the educational value of AI tools
- Recognising benefits and challenges of AI tools in everyday tasks
- Recognising applications of AI tools in learning
- Recognising applications of AI tools in research
- Finding and evaluating AI tools based on their benefits and challenges
- Organising my learning using AI tools
- Recognising ethical considerations related to AI tools

Σε ποιο βαθμό συμφωνείτε με τις ακόλουθες δηλώσεις; (1 για "Καθόλου" - 5 για "Σε πολύ μεγάλο βαθμό")

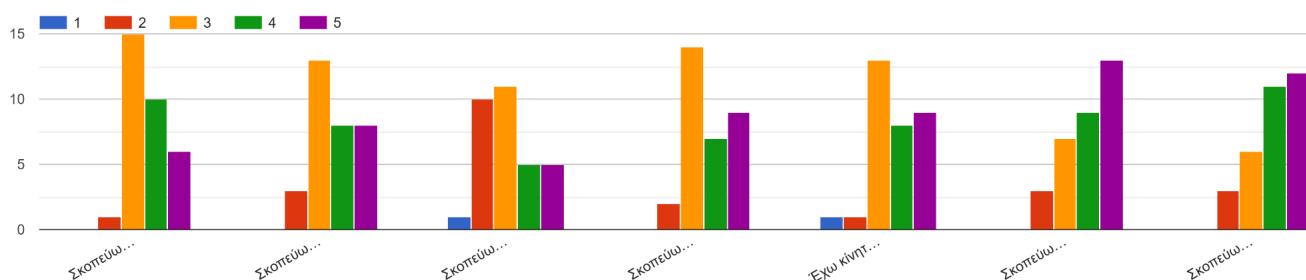


Chart 2.3. Knowledge & skills confidence (PRE)

Σε ποιο βαθμό συμφωνείτε με τις ακόλουθες δηλώσεις;

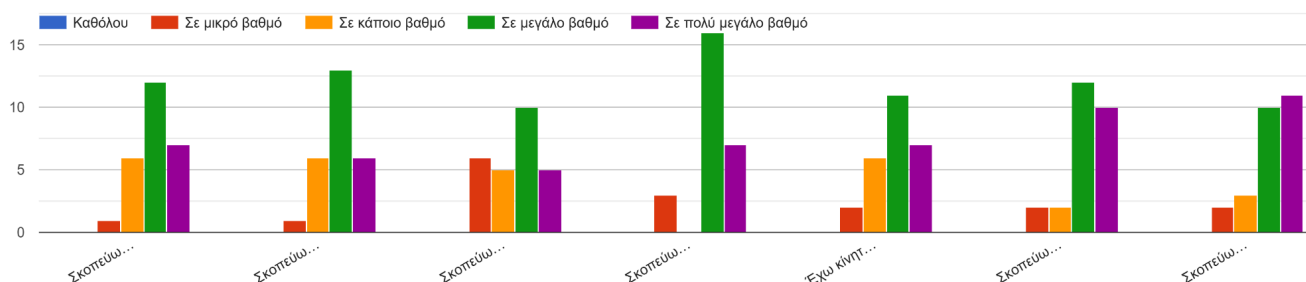


Chart 2.4. Knowledge & skills confidence (POST)

The charts present HE students' self-reported confidence levels in relation to AI-related knowledge and skills before and after completing the WP4 blended course. Results demonstrate an overall increase in confidence across all areas following the course. Notable improvements are observed in

students' ability to recognise the educational value and applications of AI tools for learning, as well as in organising their learning using AI tools. The findings suggest that the course supported the development of students' practical AI literacy and critical awareness of AI use in academic contexts.

It translates as:

How confident do you feel about the following? (1 = Not at all, 5 = To a very large extent). Items:

- *Recognising concepts related to AI in education*
- *Recognising the educational value of AI tools*
- *Recognising the benefits and challenges of AI tools in everyday tasks*
- *Recognising applications of AI tools in learning*
- *Recognising applications of AI tools in research*
- *Finding and evaluating AI tools based on their benefits and challenges*
- *Organising my learning using AI tools*
- *Recognising ethical considerations related to AI tools*

Overall, the analysis of pre- and post-assessment data and course evaluation findings indicates a consistent positive trend in participants' self-reported confidence and attitudes towards the use of AI tools in HE. Both HE academics and HE students demonstrated increased perceived competence in understanding AI concepts, recognising the educational value of AI tools, and identifying practical applications for teaching, learning, and research. In parallel, the evaluation results suggest that participants viewed the course content and scenario-based approach as relevant and useful for their academic and professional contexts. Taken together, these findings suggest that the blended courses contributed to enhancing AI literacy and fostering more informed and reflective engagement with AI tools, while highlighting the importance of continued support and training, particularly in relation to ethical considerations and practical implementation.

Feedback from classroom implementations

Feedback from HE Academics/Instructors

Feedback from HE instructors was collected through open-ended questions included in the post-implementation teacher survey. Overall, instructors reported that the scenario-based classroom activities were feasible to implement within regular teaching schedules and aligned well with their course objectives.

Instructors highlighted that the use of AI tools supported:

- more interactive and student-centred learning activities,
- improved student engagement during problem-solving tasks,
- facilitation of discussion around real-world applications of AI in professional contexts.

At the same time, instructors identified time constraints and varying levels of student familiarity with AI tools as factors requiring additional scaffolding during classroom delivery. Ethical considerations—particularly around appropriate use of AI-generated content and academic integrity—were also raised as important discussion points that emerged naturally during the in-class activities.

Overall, instructors expressed a positive intention to continue experimenting with AI-supported scenarios in their teaching and emphasised the value of structured guidance and ready-made scenarios when integrating AI into face-to-face learning environments.

HE Academics Data

Comments on aspects of the AI-based tools and materials from the INFINITE course worked particularly well or contributed most effectively to your classroom teaching:

“Ready-to-use AI prompts and templates: The structured prompt libraries (for lesson planning, quiz generation, case studies, and feedback) were immediately transferable to my own courses. They significantly reduced preparation time while improving the quality and clarity of learning activities, especially for creating scenario-based questions and differentiated tasks for students with different ability levels.”

“Discipline-neutral examples adaptable to my context: Many examples were generic enough to easily adapt to my own subject areas (business, psychology, management). This flexibility made the materials feel relevant and reduced the barrier to implementation, as I could quickly customise them with my own content.”

Comments on the Impact of the AI tools on your students' engagement, learning outcomes, or specific skill development:

“The AI tools had a clearly positive impact on student engagement and learning outcomes. Students became more active and curious in class, particularly during tasks involving AI-generated examples or comparisons. The tools helped them develop stronger critical-thinking skills, improved their ability to analyse and evaluate information, and supported more personalised learning—especially for students who needed scaffolding. Overall, AI enhanced participation, accelerated understanding of complex topics, and strengthened skills such as summarising, questioning, and reflective thinking”

Suggestions from the participants:

“Based on my experience, I would suggest incorporating more discipline-specific examples that teachers can immediately adapt to their subject areas, as well as offering additional hands-on demonstrations of AI tools during the training.”

Feedback from students

Student feedback from the classroom implementations indicates that the face-to-face, scenario-based format supported a clearer understanding of how AI tools can be applied in academic and professional tasks. Students reported that hands-on use of AI tools during the sessions helped them:

- better understand course content,
- approach assignments more efficiently,
- reflect more critically on the reliability and limitations of AI-generated outputs.

Several students noted that working with AI tools in class, rather than independently, made it easier to ask questions, clarify uncertainties, and understand ethical considerations related to AI use. Challenges reported by students included occasional uncertainty about how much reliance on AI is appropriate and concerns about accuracy or bias in AI-generated information.

Overall, students expressed a positive attitude towards the future use of AI tools in other courses, provided that instructors establish clear guidance and expectations.

HE Students Data

Section A. Knowledge and skills After participating in the classroom activities, how confident do you feel about the following?

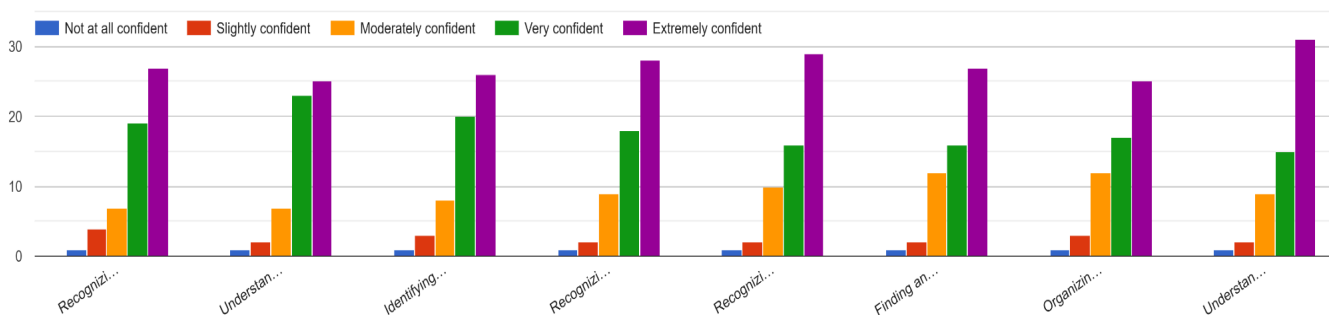


Chart A. Knowledge and skills after participating in the classroom activities

Survey question: After participating in the classroom activities, how confident do you feel about the following? (1 = Not at all, 5 = To a very large extent)

1. Recognising concepts related to AI in education
2. Recognising the educational value of AI tools
3. Recognising the benefits and challenges of AI tools in everyday tasks
4. Recognising applications of AI tools in learning
5. Recognising applications of AI tools in research
6. Finding and evaluating AI tools based on their benefits and challenges
7. Organising my learning using AI tools
8. Recognising ethical considerations related to AI tools

This chart presents HE students' self-reported confidence levels in relation to AI-related knowledge and skills following participation in the WP4 classroom implementations. Overall, results indicate high levels of perceived confidence across all assessed dimensions, suggesting that the face-to-face, scenario-based activities effectively supported students' understanding and practical engagement with AI tools.

Higher confidence levels are observed in areas related to recognising the educational value and applications of AI tools for learning, while comparatively lower—but still positive—scores appear in more advanced skills such as evaluating AI tools and identifying research-related applications. Importantly, students also report increased confidence in recognising ethical considerations related to AI use, indicating that the classroom activities supported reflective and responsible engagement with AI technologies.

These findings suggest that guided, in-class implementation of AI scenarios complements blended learning by strengthening students' practical AI literacy and confidence in applying AI tools within academic contexts.

Section B. Attitudes After the in-class implementation, to what extent do you agree with the following statements?

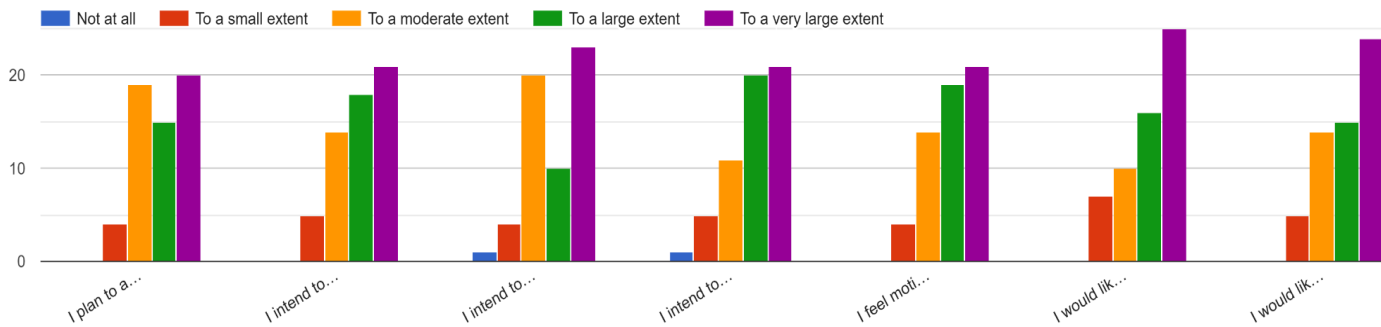


Chart B. Attitudes after the in-class implementation

Survey question: *After the in-class implementation, to what extent do you agree with the following statements? (1 = Not at all, 5 = To a very large extent)*

1. I intend to adapt my learning practices to accommodate changes brought by AI tools
2. I intend to use AI tools in my learning
3. I intend to use AI tools in my essays and deliverables
4. I intend to use AI tools in my research
5. I am motivated to further develop my skills in using AI tools
6. I intend to seek further training opportunities to better understand and use AI in education
7. I intend to seek further training opportunities to better understand AI ethics challenges

This chart presents HE students' self-reported attitudes and intentions regarding the use of AI tools following participation in the WP4 classroom implementations. Overall, results indicate a positive attitudinal orientation towards AI use, with students expressing strong motivation to integrate AI tools into their learning practices and to further develop relevant skills.

Higher levels of agreement are observed in statements related to motivation for skill development and the intention to use AI tools for learning and academic tasks, suggesting that in-class, scenario-based

activities reinforced students’ readiness to engage with AI in a purposeful manner. At the same time, students report a clear interest in further training, particularly regarding ethical challenges associated with AI use, highlighting increased awareness of responsible and informed AI engagement.

Taken together, these findings suggest that classroom implementation not only supported knowledge and skill development but also contributed to the shaping of more reflective, forward-looking attitudes towards AI use in HE.

Section C. Evaluation Please indicate your level of agreement with the following statements regarding the classroom activities you participated in.

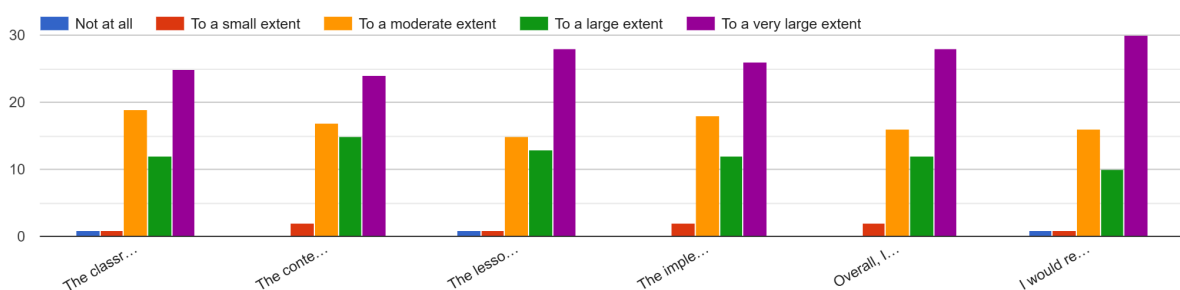


Chart C: Evaluation of classroom AI activities (HE Students)

Survey question: Please indicate your level of agreement with the following statements regarding the classroom activities you participated in. (1 = Not at all, 5 = To a very large extent)

Select the following statements from the post-classroom student survey and calculate the mean agreement score for each:

1. The classroom activities were well organised
2. The objectives of the classroom activities were clear
3. The AI tools used were relevant to the course content
4. The classroom activities helped me better understand how AI can be used in learning
5. The scenario-based activities reflected real academic or professional situations

6. The instructor provided adequate guidance during the classroom activities
7. Overall, I am satisfied with the classroom activities

This chart presents HE students' evaluation of the classroom AI activities implemented as part of WP4. Overall, responses indicate high levels of satisfaction with the design, organisation, and facilitation of the classroom sessions. Students report that the objectives of the activities were clear and that the AI tools used were relevant to the course content and learning tasks.

Strong agreement is also observed in statements regarding the authenticity of the scenario-based activities and the adequacy of instructor guidance, suggesting that the classroom implementations were pedagogically coherent and well-supported. These findings indicate that the classroom activities successfully translated the WP4 instructional framework into practice, providing participants with a structured and meaningful learning experience.

Taken together, the evaluation results suggest that the classroom implementations were delivered with a high level of quality and alignment with learners' needs, reinforcing the overall effectiveness of the WP4 approach in face-to-face HE settings.

Conclusion for both activities

While the blended courses provided a structured, self-paced introduction to AI literacy, the classroom implementations offered an opportunity to translate this knowledge into practice through guided, face-to-face activities. The combination of asynchronous learning and in-class scenario-based implementation allowed participants to engage with AI tools both independently and collaboratively, reinforcing learning outcomes and supporting reflective discussion around ethical and practical considerations.

Challenges, lessons learned and recommendations

Challenges (operational/logistical/pedagogical/technical)

The implementation of WP4 in Cyprus was completed successfully and in line with the project guidelines. The challenges observed during the process were primarily contextual and developmental, reflecting the evolving landscape of AI use in HE rather than shortcomings in planning or execution.

From an operational and logistical perspective, the main challenge is coordinating participation across asynchronous and face-to-face formats, particularly to ensure the timely completion of evaluation activities alongside regular academic obligations. This was addressed through flexible scheduling and continuous communication with instructors and students.

From a pedagogical perspective, a key challenge concerned the heterogeneity of participants' prior experience with AI tools. While some participants demonstrated advanced familiarity, others were engaging with AI-supported learning for the first time. This required differentiated pacing and additional scaffolding during classroom implementations, especially in face-to-face sessions.

From a technical standpoint, no major technical barriers were encountered. Minor challenges related to initial familiarisation with specific AI tools and variations in students' digital confidence were observed and mitigated through guided demonstrations and peer-supported activities.

Ethical considerations, including academic integrity and responsible AI use, emerged as cross-cutting discussion points rather than obstacles. These discussions enriched the learning process and highlighted the importance of embedding ethical reflection as an integral component of AI capacity-building initiatives.

Lessons learned from implementation

The implementation of WP4 in Cyprus reinforced the importance of combining structured blended learning with guided classroom application. While the asynchronous courses provided a strong conceptual and practical foundation, the classroom implementations proved

particularly valuable for consolidating learning through discussion, reflection and collaborative problem-solving.

Another key lesson learned was the effectiveness of scenario-based pedagogy in supporting meaningful engagement with AI tools. Real-world scenarios enabled participants to move beyond tool experimentation towards reflective decision-making, helping them critically assess the benefits, limitations, and ethical implications of AI in academic and professional contexts.

The experience also highlighted the value of clear instructional frameworks and ready-to-use materials. Providing instructors with structured scenarios and guidance reduced the cognitive and pedagogical load associated with introducing AI into teaching, facilitating smoother integration into existing courses.

Finally, the implementation confirmed that AI literacy development is an iterative process. Short-term interventions can meaningfully improve confidence and readiness, but sustained impact requires continued opportunities for practice, reflection and professional development.

Recommendations for future implementations

Based on the Cyprus WP4 experience, several recommendations can be formulated for future AI capacity-building initiatives in HE:

- **Maintain a blended approach** that combines self-paced learning with face-to-face or synchronous sessions, allowing participants to contextualise AI use within their own disciplinary and institutional settings.
- **Continue prioritising** scenario-based learning, ensuring that AI tools are introduced through authentic tasks that reflect real academic and professional challenges.
- **Embed ethical reflection** systematically within all AI-related learning activities, not as a separate topic but as an integral dimension of AI use.
- **Allow flexibility** in implementation timelines, recognising the diverse teaching and learning contexts within HE institutions.
- **Provide ongoing support and follow-up opportunities**, such as advanced scenarios or thematic workshops, to sustain and deepen AI literacy beyond initial training phases.

These recommendations build on WP4's implementation and aim to support the sustainable and responsible integration of AI into HE, in line with the INFINITE project's objectives.

Conclusions and recommendations

The implementation of Work Package 4 (WP4) of the INFINITE project in Cyprus demonstrates the value of a structured, blended approach to AI capacity-building in HE, combining asynchronous learning with guided, scenario-based classroom instruction. Across both HE academics and HE students, the findings indicate positive developments in self-reported confidence, attitudes and readiness to engage with AI tools for teaching, learning and academic practice. The use of real-case scenarios and explicit attention to ethical considerations supported meaningful engagement with AI, moving beyond technical familiarity towards more reflective and informed use.

The evaluation results suggest that blended, self-paced learning provides an effective foundation for introducing AI concepts, tools, and ethical frameworks, while face-to-face classroom instruction adds pedagogical depth by enabling discussion, collaboration, and contextualisation. This combination allowed participants to connect AI use to their own disciplinary and professional contexts, reinforcing learning outcomes and supporting practical application. Importantly, the classroom implementations confirmed the feasibility of integrating AI-supported activities within regular HE courses when clear guidance and structured materials are provided.

A key conclusion emerging from the Cyprus implementation is the effectiveness of scenario-based pedagogy in operationalising AI literacy in HE. Scenarios facilitated active learning, critical evaluation of AI outputs, and dialogue on responsible use, helping participants navigate both the opportunities and limitations of AI tools. The findings also highlight that AI literacy development is not a one-off intervention but a progressive process, requiring sustained opportunities for practice, reflection and professional development.

Based on the overall experience, several recommendations can be formulated for future capacity-building initiatives. First, HEIs should maintain and expand blended training models that integrate self-paced learning with classroom-based application. Second, future implementations should continue to prioritise authentic, scenario-based activities that align with real academic and professional challenges. Third,

ethical reflection should remain embedded throughout AI-related learning, rather than treated as a separate or optional component. Finally, institutions are encouraged to provide ongoing support and follow-up opportunities, such as advanced scenarios or thematic workshops, to sustain AI literacy development over time. These recommendations support the sustainable, responsible and context-sensitive integration of AI in HE, in line with the objectives of the INFINITE project.