

Developing Micro-credentials in AI for Assessment in Asia and Europe

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Abstract

The extreme transformation in education worldwide was driven by rapid technological advancements and an increasing demand for specialized skills. Microcredentials have emerged as smooth, skills-focused learning pathways, offering a flexible response to the evolving needs of the workforce and higher education. At the same time, Artificial Intelligence (AI) is revolutionizing educational practices, particularly in evaluation and assessment, by enabling personalized learning, enhancing efficiency, and providing data-driven insights. However, the widespread and ethical integration of AI in assessment faces significant challenges, including issues of bias, data privacy, and the need for strong quality assurance.

ASEF (Asia-Europe Foundation) for Higher Education and Innovative Laboratory is continuously conducting online training on AI for educators in Asia and Europe, focusing on two tracks: 1) Academic Paper track and 2) Developing a Micro-credential track. This paper is a documentation of the author's involvement in that training program with the intent to learn and capacitate for personal and institutional development in the future. This paper will outline the path in development micro-credential course. It will examine the factors to consider before creating a micro-credential course that will focus on the use of AI for evaluation and assessment within the Asia-Europe context. It will present the rationale for such a course, explore the characteristics and benefits of micro-credentials, detail the applications and advantages of AI in assessment, and propose a curriculum designed to address the professional development needs of educators and administrators. A critical emphasis on navigating the complex ethical considerations and policy implications unique to Asia, advocating for transparency, accountability, and human oversight, will also be included.

Keywords: *AI, educational assessment and evaluation, microcredentials, AI ethics*

AI Literacy and Readiness in Asia and Europe

The diversity of educational contexts in Asia presents obstacles and transformative potential. Cases vary from rural classrooms where connectivity remains a major problem to hyper-connected city schools already experimenting

with adaptive learning and high-tech designs; the region manifests contrast in terms of levels of technological maturity. However, if there's one thing in common for all, it is the expectation that teachers/educators not only master their expertise but also become mediators of AI's psychological and ethical dimensions. Incorporating AI into teacher preparation and training became a must, and not just an add-on or elective topic. But the question remains—are teachers in Asia ready to embrace these new and super-upgraded technologies? Maybe for some, especially those who teach in the city, but there are some who still use chalk and blackboards because of the lack of opportunities, facilities, and infrastructures. This is where developing a micro-credential course comes in. Its primary goal is to capacitate the educators/teachers without taking up so much of their time and energy to study full-time. A micro credential on Assessment in AI should not be seen as a luxury but a functional necessity for Asian institutions. It provides the agility required to update pedagogical practices in months rather than years, ensuring that the region's massive student population remains globally competitive while maintaining the highest standards of academic and professional integrity.

“AI readiness would refer to the state of preparedness a nation has in terms of adopting and leveraging AI technologies at the everyday task level” (Xu et.al., 2024). In an article written by Mansoor et al., they said: “ AI literacy enables individuals to critically evaluate artificial intelligence technologies and use them effectively, ethically, and safely in educational work and personal environments as well as in various aspects of life.” And how can educators or teachers achieve these AI literacies? This is where continuing education plays a big role. Depending on the situation, teachers can undergo training or short courses in universities or other training institutions to elevate their AI literacy. Trending nowadays are taking Micro-credential courses that can supplement formal teacher education, enabling professionals to earn recognition attuned to their needs or emerging job profiles. Micro-credentials are short, focused programs designed to provide specific skills or knowledge in a particular area. These programs are often offered online and are quick to complete. They cater to working professionals looking to upskill or reskill quickly without committing to a multi-year program (Plotkin, 2025). In 2024, the ASEAN Foundation launched a two-and-a-half-year project whose goal is to boost AI literacy across ASEAN's 10-member states (<https://aseanfoundation.org/>).

The ASEF Experience

ASEF or Asia Europe Foundation is an intergovernmental not-for-profit organization that brings together the peoples of Asia and Europe (ASEF-Innolab, 2025). One of its core values is to “incorporate mutual, continuous and lifelong learning by sharing knowledge and experiences from diverse perspectives and disciplines, encouraging interdepartmental and multi-stakeholder collaboration to tackle current global challenges.” Education is one of their thematic disciplines, which is why they collaborate with students, teachers, academics, and experts to facilitate policy making and capacity building. In May 2025, ASEF's Innovative Laboratory conducted the “6th ASEF Higher Education Innovative Laboratory: University's Role in Developing Skills for AI-Powered Future.” It was attended by more than a hundred participants

composed of higher education professionals, academics, and researchers from Asia and Europe who are leading AI-related teaching, learning, research, or management initiatives in their institutions. The program ran from May 14 to July 23, 2025 (Online Phase) and October – December 2025 for the onsite events to finalize and polish the team outputs. However, only the outstanding teams were invited to the on-site event. This training program was divided into two tracks: 1) Academic Papers focuses on developing insightful papers on strategic institutional responses and pedagogies to cultivate future-ready individuals, and 2) Micro-credential Programs that feature drafting of practical course frameworks and outlines to bridge AI knowledge gaps. These two tracks were conducted by the ASEF pool of trainers with expertise in AI.

The core theme of the 6th edition is "Universities' Role in Developing Skills for an AI-Powered Future." The program centers its work on two critical areas: 1) AI Skills Foresight- which anticipates the emerging AI skill needs for future workforces and develops strategic approaches for universities to address them, and 2) AI Literacy- which explores hands-on approaches to designing effective, scalable micro-credential courses on AI literacy that can be used across various disciplines.

Research Questions

To systematically examine the development of a micro-credential course addressing AI literacy gaps among educators, this study adopts a conceptual design-based research approach. The following research questions guided the design process:

1. What are the current levels of AI literacy and readiness among educators in selected Asian and European higher education contexts?
2. What are the competency gaps of educators when it comes to AI-supported assessment and evaluation?
3. How would a micro-credential course be designed to address the AI literacy and assessment competency gaps of educators?
4. What design considerations would be necessary to make an AI micro-credential course culturally relevant, ethically sound, and practically relevant to educators?

Research Methodology

This study adopts a conceptual Design-Based Research (DBR) approach to develop a proposed micro-credential course on AI-supported assessment and evaluation. According to Sayre, design-based research (DBR) is a key method in the learning sciences, which is used to simultaneously develop both learning theory and the design of instructional interventions. Conceptual DBR is appropriate for this study as it focuses on the systematic design of an educational intervention grounded in theory, empirical insights, and contextual needs analysis, prior to full implementation and evaluation. The approach allows the study to generate a theoretically informed and practice-oriented course framework addressing emerging competency requirements in AI-assisted educational assessment.

Design and Development of a Micro-credential Course for Assessment and Evaluation

The study follows the early phases of DBR, which emphasize problem identification, needs analysis, and prototype design. This design integrates theoretical frameworks on AI literacy, assessment validity, and professional development with collaborative curriculum development processes. The research aligns with the ASEF Innovative Laboratory's peer-learning and co-creation model, which promotes interdisciplinary and cross-cultural knowledge construction.

Developing a microcredential course for educators on AI is a strategic necessity for several reasons. First, it addresses the immediate need for practical skills. Educators need to understand how to use AI for tasks like personalized feedback, automated grading, and data analysis to improve learning outcomes. A microcredential, unlike a full degree, can be designed and deployed rapidly to meet this need. Second, it promotes lifelong learning. The pace of AI innovation is such that skills acquired today will need continuous updating. The modular and stackable nature of micro credentials makes them a perfect vehicle for this ongoing professional development. Third, a microcredential provides a verifiable and portable credential. It offers a clear signal to educational institutions that an individual has mastered a specific set of competencies. Finally, it allows for flexibility and accessibility. An online micro credential can be offered to many participants across different countries and time zones, making it an efficient way to disseminate knowledge across the Asian region.

In the ASEF training, a series of lectures about AI was conducted in the first few weeks. After that, the participants were divided into the AI Literacy track, the micro credential group, and the Academic Papers track. The literacy tract of the micro credential group submitted fourteen (14) titles/topics. One of those was about an introductory course on the use of AI for learning assessment and evaluation. There were four participants in this group, composed of two Filipinos, one Malaysian, and one Slovakian. These four people of different cultures worked together to create a simple microcredential introductory course on assessment and evaluation.

The development of the microcredential employs a conceptual design-based research methodology, structured as a rigorous, multi-phased process. This approach is engineered to ensure maximal cross-cultural relevance, ethical compliance, and academic quality. It is intentionally collaborative, leveraging the peer-to-peer learning model of the ASEF Innovative Laboratory to integrate different global expertise. The group had presented three steps to develop a microcredential course.

Step 1: Contextual Needs Analysis and Scoping

In this phases, the group emphasized the importance of establishing the precise learning need and context, targeting the specific application of AI in educational measurements across Asia and Europe by:

- Defining the specific, measurable competencies related to AI-powered assessment. This includes skills such as designing effective AI-supported rubrics, interpreting predictive performance analytics, and ensuring the construct validity of AI-scored assignments.
- Engaging higher education managers, testing organizations, and academics from both Asia and Europe to validate the practical skills gap in assessment and evaluation, ensuring the course output is relevant to evolving industry standards for educational data.
- Establishing the micro credential's verifiable competency as the ability to design a fair, AI-augmented assessment strategy and defend its validity and ethical governance.

Step 2: Curriculum Structure

In this phase, insights from the needs analysis that was conducted by the group to gather insights from the members of the academe and use it as a basis for designing an assessment- focused content. The following are the plans that were incorporated into the presentation of the proposed microcredential course:

- Organize the learning outcomes to build proficiency from foundational AI concepts (Module 1) through practical tool application (Module 2) to critical evaluation (Module 3), ensuring a bite-sized approach to mastering assessment technologies.
- Make the course content with authentic, regional case studies that contrast the challenges of implementing AI assessment tools—such as bias against non-native English speakers in automated essay scoring—in different Asian and European contexts.
- Design experiential learning activities. The final project involves the development of a comprehensive AI-Assessment Module with detailed tool selection, validity checks, score interpretation protocols, and a plan for responsible implementation in the participant's local institution.

Step 3: Ethical Issues and Quality Assurance

Given the sensitive nature of student assessment data, this phase focuses entirely on ethical and quality control for measurement tools by:

- Subjecting the course curriculum and content to a critical review by ethicists and legal experts familiar with cross-border data transfer and student privacy protection. This review specifically audits content on fairness in scoring and mitigating data bias in evaluation models.
- Auditing all suggested AI assessment tools and datasets used in the course for potential systemic biases (e.g., related to language, culture, socioeconomic status), ensuring that the examples promote fair and equitable application of AI in grading and feedback.
- Utilizing the ASEF InnoLab network for peer review of the draft content, focusing on the clarity and academic accuracy of the assessment principles and their alignment with global best practices in educational measurement.

Together, the three phases form a coherent logic:

- Step 1 ensures relevance and contextual legitimacy.
- Step 2 ensures pedagogical coherence and competency development.
- Step 3 ensures ethical integrity and quality sustainability.

The framework balances technical competence, pedagogical design, and ethical governance. Strengthening it further would involve deeper contextual diagnostics, structured transparency mechanisms, and long-term monitoring strategies—particularly important in a rapidly evolving AI regulatory and technological landscape.

Scope and Limitations

As a conceptual DBR study, this research focuses on the development of a course framework rather than its empirical implementation and evaluation. Future research is recommended to pilot, test, and iteratively refine the micro-credential program across diverse institutional contexts.

Conclusion

Developing a microcredential course on AI for educators in Asia is not merely an educational endeavor; it is a strategic asset in the future of humanity. By offering a flexible, skills-based, and contextually relevant learning pathway, we can empower educators to become leaders in an AI-driven educational transformation. The proposed framework, which emphasizes practical skills, human oversight, and a deep understanding of ethical and cultural nuances, provides a good foundation for the development of a full microcredential course. The path forward requires continuous collaboration among educators, technologists, and policymakers to ensure that the integration of AI is not only efficient but also equitable and socially responsible.

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