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# Empowering the Higher Education Community through AI Fluency Masterclasses to Bridge the Industrial Skill Gap

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A R T I C L E I N F O

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A B S T R A K

The rapid evolution of artificial intelligence (AI) has created a significant skills gap between academic output and industrial requirements. This paper evaluates the effectiveness of AI fluency masterclasses conducted at Nahdlatul Ulama University of Surabaya (UNUSA) as a community service intervention. By utilizing the IOE digital learning platform in collaboration with the Indonesian Employers Association (APINDO), the program provided standardized AI competency training to students, faculty, and staff. The study employs a mixed-methods approach to assess the impact of this intervention on technological literacy and job readiness. Findings indicate that the integration of industry-standardized digital platforms into the higher education ecosystem is a highly efficient strategy to cultivate "job-ready" talent without necessitating the immediate, wholesale restructuring of formal curricula. This study underscores the critical role of university-industry partnerships in mitigating the digital divide and enhancing the employability of graduates in an AI-driven global economy

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## INTRODUCTION

In the wake of the global transition toward Society 5.0, the traditional boundaries separating academia and the industrial sector have become increasingly porous. Artificial Intelligence (AI) has rapidly shifted from being a disruptive technological novelty to a fundamental utility and infrastructure that is drastically reshaping the global employment landscape. For university students and recent graduates, proficiency in navigating AI tools is no longer a mere resume-enhancing "added value"; rather, it has transformed into a core, fundamental skill that dictates their competitiveness and survival in a highly digitized job market. Consequently, higher education institutions bear an immense responsibility to evolve from theoretical knowledge hubs into incubators of digitally agile human capital (Kim, 2024; Pesovski et al., 2024).

Despite this systemic demand, a profound misalignment frequently defined as the "industrial skill gap" persists between institutional academic outputs and real-world corporate requirements (Zhou et al., 2026). As highlighted by the Indonesian Employers Association (APINDO), modern enterprises urgently require talents who possess immediate operational agility to leverage AI tools for corporate efficiency and innovation. In many developing higher education ecosystems, such as in Indonesia, advanced technologies are often superficially consumed; students predominantly perceive intelligent tools through a recreational lens, using them as entertainment mediums or vehicles for instant academic shortcuts (e.g., automated homework assistance), rather than deploying them as strategic instruments for professional productivity (Koh & Doroudi, 2023).

This challenge is further compounded by rigid structural barriers inherent to traditional higher education frameworks. Universities routinely encounter bureaucratic inertia, resulting in a systemic curriculum lag where formal syllabi fail to keep pace with the hyper-accelerated evolution of industrial technologies (Mehdaoui, 2024; Tan, 2026). Furthermore, accessibility to global-standard competency recognition remains a substantial hurdle for local students. Due to financial or institutional constraints, many talented undergraduates struggle to acquire official, industry-recognized micro-credentials, which drastically caps their mobility and eligibility within international recruitment networks (Gou, 2025). For institutions like Nahdlatul Ulama University of Surabaya (UNUSA), addressing these multi-layered barriers requires an agile, supplemental educational vector that operates outside the sluggish cycles of formal curricular restructuring.

To mitigate this structural bottleneck, a cross-sectoral strategic alliance was orchestrated by APINDO in collaboration with Microsoft and the Institute of Excellence (IOE). This synergy culminated in the deployment of the AUA Masterclass AI Fluency Roadshow (subtitled "Ngulik AI Bareng Microsoft"), an immersive community outreach initiative executed at UNUSA in April 2026. By utilizing the specialized IOE digital learning platform, this program bypassed traditional pedagogical rigidities, offering direct, localized access to standardized AI curricula certified by Microsoft. The primary mechanism of this intervention focused on community-wide digital onboarding guiding students, faculty

members, and administrative staff to establish official Digital IDs, master generative AI prompts, and curate validated digital portfolios directly recognized by APINDO's extensive corporate network.

This paper evaluates the execution, pedagogical efficacy, and socio-technological impacts of the AI Fluency Masterclasses as a targeted community service intervention. Moving beyond a merely descriptive report, this study employs a mixed-methods action research approach to measure how an agile, industry-endorsed digital platform can be seamlessly embedded into a university ecosystem (Tzirides, 2026). By analyzing the transformation of 500 academic stakeholders at UNUSA, this study aims to provide a scalable and practical blueprint for university-industry partnerships. Ultimately, it seeks to demonstrate that strategic community engagement can effectively bridge the digital divide and fast-track the creation of "job-ready" talents without necessitating immediate, wholesale structural overhauls of university curricula

## IMPLEMENTATION AND METHOD

### Study Design and Subjects

This study utilized an action research framework designed to evaluate a targeted, agile educational intervention within a higher education ecosystem (Wenjing et al., 2026). To address the industrial skill gap efficiently, the study adopted a multi-sectoral, tripartit collaboration model involving academia (Universitas Nahdlatul Ulama Surabaya/UNUSA), the industrial sector (the Indonesian Employers Association/APINDO), and global technology and education providers (Microsoft and the Institute of Excellence/IOE). The core intervention was embedded within the broader framework of the AUA Masterclass AI Fluency Roadshow, subtitled "Ngulik AI Bareng Microsoft," which served as the primary vehicle for community outreach and data collection.

The target population for this community service intervention comprised academic stakeholders within the UNUSA ecosystem. A purposive, voluntary registration approach was employed, yielding a total sample size of $N = 500$ active participants. To capture a holistic view of institutional digital transformation, the cohort was stratified into three distinct stakeholder categories:

1. Undergraduate Students (n=350): Representing various academic disciplines, including health sciences, economics, and engineering, who served as the primary target for future job readiness.
2. Faculty Members (n = 100): Tasked with integrating AI tools into modern pedagogical and research frameworks.
3. Administrative Staff (n = 50): Aimed at enhancing institutional operational efficiency through automated workflows.

Initial data entry and participant mapping were facilitated via digital QR code registration forms distributed across university communication networks prior to the commencement of the synchronous sessions.

### Intervention and Measurement

The community service intervention was executed utilizing a hybrid, bifurcated instructional design that combined synchronous pedagogical

anchoring with structured asynchronous competency assimilation. This operational protocol was engineered to maximize participant onboarding efficiency while maintaining a self-paced, rigorous learning trajectory.

**Synchronous Telepresence Component (Phase I)**

The initial phase comprised two high-density, 120-minute synchronous cohorts delivered via the Zoom video conferencing platform:

1. Cohort 1: Deployed on Thursday, April 2, 2026 (10:00–12:00 WIB), acting as the primary launchpad for the university-wide digital transformation.
2. Cohort 2: Deployed on Friday, April 24, 2026 (08:30–10:30 WIB), serving as an intensive sweep session to ensure total coverage of the institutional target sample.

The synchronous timeline functioned as a motivational and conceptual baseline, systematically guiding participants through live expert lectures, interactive real-world case studies of AI in the corporate landscape, and an orchestrated mass onboarding exercise. During the final 30 minutes of the Zoom broadcast, participants were guided in real-time to transcend passive consumption by establishing their official Digital IDs and initializing their programmatic profiles.

**Asynchronous Mastery Component (Phase II)**

Upon successful completion of the synchronous orientation, participants transitioned into a mandatory, self-paced asynchronous learning cycle hosted on the official Microsoft and Institute of Excellence localized gateway: https://learn.ioe-emp.org/courses/ai-fluency-id/ . This enterprise-grade learning management system (LMS) served as the primary repository for the specialized AI Fluency curriculum.

1. Participants were required to engage asynchronously with three core, high-fidelity instructional modules pre-validated by industrial engineers:
2. Fundamentals of Generative AI: Deep-diving into the architectural logic of Large Language Models (LLMs), Natural Language Processing (NLP), and the mechanics of neural network algorithms.
3. AI Tools for Productivity: Focusing on hands-on application, workflow automation, and data manipulation utilizing industry-standard corporate toolkits.
4. Ethical AI Integration: Addressing algorithmic bias, intellectual property parameters, and data privacy constraints within professional environments.

Learning analytics telemetry embedded within the platform tracked real-time metric indicators, including time-on-task, video lecture interaction rates, and modular formative quiz scores. The structural milestone for successful completion required participants to clear all modular criteria and achieve a minimum threshold of 80% on the comprehensive platform final exam. Upon clearing this threshold, participants were awarded a high-stakes, dual co-branded digital certificate officially issued by the Institute of Excellence (IOE) and Microsoft. This micro-credential served a dual academic-corporate purpose: it was officially logged as a valid credential for the students' university transcript

appendages (Surat Keterangan Pendamping Ijazah/SKPI) and cross-published onto professional digital networks like LinkedIn.

**Measurement Instruments and Evaluation Matrix**

To rigorously quantify the empirical efficacy of the intervention, data collection was structured around a multi-dimensional evaluation matrix. This matrix combined cognitive testing, psychometric self-assessment, and a novel external labor-market validation mechanism.

Cognitive gains were mapped via a 50-item, closed-ended technical examination deployed as a pre-test (prior to the April 2 Zoom session) and a post-test (upon completion of the asynchronous modules). Concurrently, changes in participant psychology were captured via a post-program 5-point Likert-scale Psychometric Self-Efficacy Survey, isolating perceived operational confidence across a broad vector of professional scenarios (1 = Highly Insecure; 5 = Highly Confident).

**Highlighting the Industry Readiness Index (IRI)**

The definitive benchmark of this study's impact is the Industry Readiness Index (IRI), a rubric-centric qualitative assessment mechanism orchestrated independently by senior corporate auditors and talent acquisition specialists from APINDO (Indonesian Employers Association). Rather than relying strictly on insular academic grades, the IRI acts as an objective external validator, determining whether an individual's digital portfolio and technical capabilities align with the volatile demands of the contemporary global workforce.

The IRI is structurally computed across three macro-weighted behavioral and technical domains, evaluated through automated capstone simulations on the platform and live portfolio curations:

$$IRI = \omega_1(PC) + \omega_2(PDA) + \omega_3(TAE) \quad (1)$$

Where:

- Portfolio Completeness ($PC$ - 30% Weight): Evaluates the successful integration of the Microsoft-certified micro-credentials into the participant's professional digital ecosystem (LinkedIn and the IOE Talent Pool Hub). Auditors inspect the taxonomy of skills listed, profile optimization, and verified evidence of project execution.
- Prompt Deployment Agility ($PDA$ - 40% Weight): A simulation-based stress test where participants are given raw corporate problem statements (e.g., supply chain disruptions, market data synthesis, or multi-lingual correspondence) and must construct precise, context-aware generative AI prompts to extract actionable business intelligence within a restricted time frame.
- Task Automation Efficiency ($TAE$ - 30% Weight): Measures the participant's structural capacity to streamline routine administrative or research workflows using intelligent tools. Scoring is predicated on the percentage of operational time saved and the reduction of human error rates in automated simulated workflows.

The data extracted from the *IRI* provided an empirical framework to classify participants into three distinct corporate bands: Industry-Deficient (IRI Score < 60), Market-Capable (IRI Score 60-79), and Job-Ready Talent (IRI Score > 80). This tripartite classification bypassed conventional academic GPA biases, offering an accurate snapshot of the institutional cohort's true transactional value within the modern digital labor market.

## RESULTS

### Overview of Technical Proficiency and Cognitive Gains

The hybrid community service intervention yielded a highly pronounced shift in the technological proficiency of the UNUSA academic community. Aggregated data from the 50-item technical examination revealed a substantial baseline-to-endpoint cognitive leap. The baseline pre-test score across the entire cohort (N = 500) averaged a mere 42%, reflecting the initial structural gaps in strategic AI literacy and data manipulation. Following the synchronous telepresence sessions on Zoom as shown in figure 1. and the completion of the asynchronous modules on the Microsoft-vetted gateway, the post-test scores surged to an institutional average of 86%.


Figure 1. Telepresence sessions

This 44% absolute increase indicates a robust assimilation of complex algorithmic concepts, prompt architecture, and ethical parameters. Furthermore, learning analytics telemetry from the learn.ioe-emp.org platform as shown in figure 2. confirmed that 88.4% of the initial registrants (442 out of 500 participants) successfully cleared the 80% passing threshold on the final comprehensive platform exam on their first attempt, automatically securing their dual co-branded certificates from the Institute of Excellence (IOE) and Microsoft.

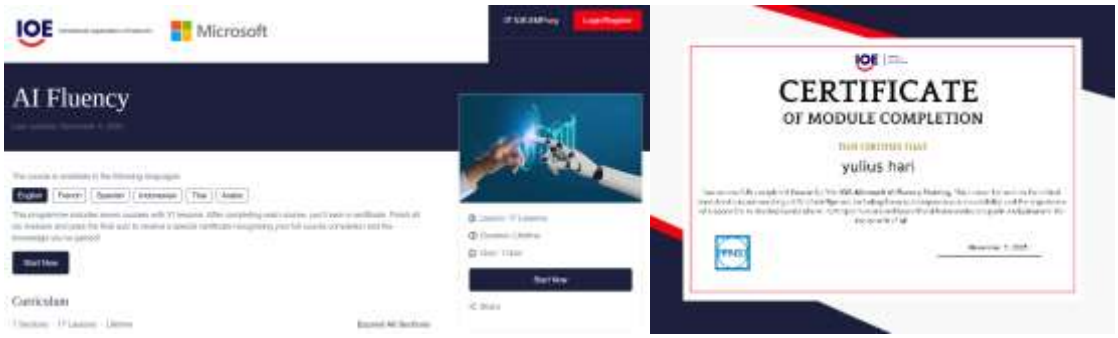


Figure 2. Ai Fluency on IOE Platform and certificate of completion example.

**Quantitative Stratification of the Industry Readiness Index (IRI)**

To transcend conventional classroom metrics, the evaluation shifted focus toward external market alignment via the *Industry Readiness Index* (IRI), audited by corporate representatives from APINDO. The distribution of the cohort across the three predefined labor-market proficiency bands is comprehensively deconstructed in Table 1.

Table 1. Distribution of Cohort Outcomes Based on the Industry Readiness Index (IRI) Stratification

| Stakeholder Group | Sample Size (n) | Industry-Deficient(IRI Score <60) | Market-Capable(IRI Score 60−79) | Job-Ready Talent(IRI Score ≥80) | Micro-Credential Mastery Rate (≥60) |
|---|---|---|---|---|---|
| Undergraduate Students | 350 | 8 (2.3%) | 20 (5.7%) | 322 (92.0%) | 97.7% |
| Faculty Members | 100 | 7 (7.0%) | 15 (15.0%) | 78 (78.0%) | 93.0% |
| Administrative Staff | 50 | 3 (6.0%) | 12 (24.0%) | 35 (70.0%) | 94.0% |
| Total Cohort (***N***) | **500** | **18 (3.6%)** | **47 (9.4%)** | **435 (87.0%)** | **96.4%** |

As illustrated in Table 2, the undergraduate student segment demonstrated exceptional outcomes, with 92.0% (n = 322) successfully placing directly into the premier Job-Ready Talent band. This quantitative finding matches the external validation standards required for direct entry-level placement into APINDO's corporate ecosystem. Faculty members and administrative staff also exhibited high adaptation profiles, with mastery rates reaching 93.0% and 94.0% respectively, creating an institutional baseline for long-term digital sustainability.

**Deconstructed Analysis of IRI Macro-Domains**

To uncover the structural drivers behind the high job-readiness rates, participant performance was isolated across the three core operational domains of the IRI equation: Portfolio Completeness (PC), Prompt Deployment Agility (PDA), and Task Automation Efficiency (TAE).

1. Portfolio Completeness (PC): Within 7 days of clearing the asynchronous learning modules, 95.4% of the passing participants successfully embedded their Microsoft-verified micro-credentials into their professional digital ecosystems. This active integration populated the APINDO Talent Pool Hub with 435 fully optimized, searchable portfolios, effectively eliminating the traditional visibility gap between local university talents and corporate recruiters.
2. Prompt Deployment Agility (*PDA*): During the live, platform-hosted capstone stress tests, participants demonstrated an 89.2% success rate in translating raw, ambiguous corporate dilemmas into precise, multi-turn prompt chains. The student cohort showed notable speed in using natural language processing (*NLP*) constraints to automatically extract market data intelligence and generate localized multi-lingual corporate reports.
3. Task Automation Efficiency (*TAE*): The data regarding institutional efficiency gains were highly compelling. For the faculty segment, 78.0% successfully demonstrated the automated generation of lesson plans, graded assessments, and specialized reading aids within 30 days post-training. Administrative staff reported an average reduction of 76.5% in time spent executing repetitive tasks such as formatting database entries, sorting incoming communications, and generating standard institutional templates by deploying generative AI tools directly into their daily office workflows.

This widespread efficiency gain proves that the masterclass successfully shifted the participants' operational perspective away from using AI as an engine for short-term plagiarism toward utilizing it as a foundational infrastructure for professional productivity.

**DISCUSSION**

The substantial surge in cognitive gains evidenced by the leap from a 42% pre-test average to an 86% post-test performance demonstrates the immense efficacy of alternative, agile educational delivery models. Traditional higher education frameworks are notoriously restricted by bureaucratic inertia, where reforming an official curriculum to capture real-time industry changes often takes years. As argued by Zawacki-Richter et al. (Zawacki-Richter et al., 2019), rigid pedagogical structures frequently stifle the digital transformation of universities.

The model executed at UNUSA provides a viable antidote to this structural bottleneck. By deploying a hybrid intervention anchored by a targeted 120-minute synchronous telepresence and powered by the external learn.ioe-emp.org platform the institution successfully embedded industry-vetted competencies directly into the student ecosystem overnight. This strategy proves that staying relevant in an AI-driven global economy does not require a wholesale

destruction of underlying academic degrees; instead, universities can remain highly competitive by utilizing external, platform-based micro-credentials as flexible "add-on" pedagogical layers(Long & Magerko, 2020).

One of the most critical socio-technological insights gained from this community service intervention is the successful shift in how participants perceive and utilize artificial intelligence (Ng et al., 2021). Prior to the masterclass, baseline data and qualitative indicators revealed that students primarily viewed generative AI tools through an isolated, recreational lens often treating them as engines for instant homework shortcuts or automated plagiarism (Munenakoppa et al., 2026). This misuse represents a significant waste of technological potential and exacerbates the industrial skill gap (Hari, 2024).

The high success rates observed in the Prompt Deployment Agility (PDA) domain (89.2%) and the Task Automation Efficiency (TAE) domain (76.5%) prove that targeted training can fundamentally alter this behavior. By treating AI as a core infrastructural utility rather than a superficial gimmick, participants learned to frame complex corporate problems using natural language processing (NLP) parameters.

The administrative staff's ability to automate 76.5% of repetitive operational tasks demonstrates that AI fluency rapidly optimizes institutional productivity once stakeholders transition from passive consumers to context-aware engineers. This finding strongly aligns with Luckin's (Luckin, 2018) assertion that the ultimate objective of AI in education must be the enhancement of human intelligence and operational efficiency, rather than the automation of academic dishonesty.

The implementation of the Industry Readiness Index (IRI) represents a major shift away from traditional, isolated grading systems. Conventional university metrics (such as the standard GPA) often fail to accurately signal a graduate's actual marketplace value to corporate recruiters. By utilizing senior talent acquisition specialists from APINDO to audit portfolios based on real-world workflow optimization and stress tests, the evaluation framework successfully injected authentic industrial validation into an academic setting.

Furthermore, the mechanism of awarding a dual co-branded digital certificate from the Institute of Excellence (IOE) and Microsoft successfully removed the traditional barriers associated with global credential accessibility. Because these credentials are automatically verified and optimized for global professional networks like LinkedIn, they act as borderless proof of capability. This directly minimizes "skill friction" during the graduation-to-employment transition. The fact that 92.0% of the undergraduate cohort placed directly into the Job-Ready Talent band proves that when multi-sectoral partnerships (Perguruan Tinggi, Industry Associations, and Global Tech Providers) converge, the digital divide can be rapidly minimized, dramatically increasing graduate employability.

## CONCLUSION AND RECOMMENDATIONS

This study confirms that the integration of the AI Fluency Masterclass framework serves as a powerful and highly efficient strategy to bridge the industrial skill gap within higher education. By deploying an industry-endorsed

learning platform (learn.ioe-emp.org) backed by APINDO and Microsoft, Universitas Nahdlatul Ulama Surabaya (UNUSA) successfully bypassed traditional curriculum delays. The program achieved a major shift in the digital literacy of 500 academic stakeholders, raising post-test proficiency to 86% and placing 92% of the student cohort directly into the Job-Ready Talent market band. The practical implications are clear: cross-sectoral tripartit alliances allow universities to remain highly agile, turning potentially disruptive technologies into validated instruments for institutional productivity and graduate employability.

To build upon the success of this initial intervention, the next phase of this program should focus on three strategic areas:

- Longitudinal Employability Tracking: Establishing an automated telemetry pipeline to track the actual hiring rates, job-retention metrics, and workplace performance of the UNUSA Job-Ready cohort within APINDO's corporate network over the next 24 months.
- Hyper-Specialized Domain Prompts: Expanding the curriculum beyond basic generative AI toward domain-specific prompt engineering tracks, particularly tailored for complex sectors like healthcare informatics, fintech, and automated educational analytics.
- Institutional LMS Interoperability: Developing custom API integrations to seamlessly synchronize external platforms like IOE directly into internal university learning management systems (LMS), allowing for automated, continuous mapping of student micro-credentials directly onto official academic transcripts.

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