International Association for Quality Assurance

in Pre-Tertiary and Higher Education (QAHE)

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World Quality Assurance in Education Across Levels

and Its Compatibility with Artificial Intelligence Development

A Research Paper

Prepared by the Research Committee

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Abstract

This research paper examines the global landscape of quality assurance (QA) in education across pre-tertiary, vocational, higher education, and lifelong learning levels, and analyses its compatibility with the accelerating development of artificial intelligence (AI). Drawing on international frameworks including the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), INQAAHE International Standards and Guidelines, UNESCO guidance on generative AI, and ISO standards for educational organisations, the paper maps the evolution of external and internal QA systems. It then explores AI applications in personalised learning, assessment, administrative efficiency, and predictive analytics, while addressing critical challenges of validity, reliability, fairness, algorithmic bias, data privacy, and academic integrity. The analysis argues that QA systems and AI are not inherently incompatible; rather, they can be mutually reinforcing when AI is governed through human-centred, transparent, and accountable frameworks that preserve educational purpose. The paper proposes an integrative model for QA agencies and institutions and outlines specific implications for the International Association for Quality Assurance in Pre-Tertiary and Higher Education (QAHE).

Keywords: quality assurance, artificial intelligence, higher education, pre-tertiary education, generative AI, academic integrity, algorithmic accountability, international accreditation, QAHE

1. Introduction

Quality assurance in education has expanded from a primarily national concern into a complex international ecosystem. Over the past three decades, the massification of tertiary education, the growth of cross-border provision, the rise of online and distance learning, and the diversification of credentials have driven the proliferation of external quality assurance agencies, national qualifications frameworks, and regional standards. Simultaneously, artificial intelligence—particularly generative AI since 2022—has begun to transform teaching, learning, assessment, and institutional operations at every educational level.

These two developments intersect at a critical juncture. Traditional QA frameworks were largely designed for human-mediated processes. AI introduces new efficiencies and personalisation possibilities, yet it also creates risks to the validity of assessment, the transparency of decision-making, equity of access, and the authenticity of student work. The central question addressed in this paper is therefore: how can world quality assurance systems across educational levels remain robust, relevant, and legitimate while becoming compatible with—and potentially enhanced by—AI development?

The International Association for Quality Assurance in Pre-Tertiary and Higher Education (QAHE), operating as an independent, ISO-aligned international body with a scope spanning K-12, vocational, higher education, and online provision, is positioned to contribute to this evolving dialogue. This paper provides a scholarly foundation for that contribution.

2. The Global Landscape of Quality Assurance in Education

2.1 Higher Education

Higher education QA is the most developed domain. The European Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG, 2015) remain the most widely referenced regional framework, covering internal QA, external QA, and the quality assurance of QA agencies themselves. The European Quality Assurance Register (EQAR) operationalises the ESG by registering agencies that demonstrate substantial compliance. Parallel systems exist in North America (regional accreditors recognised by the U.S. Department of Education and CHEA), Asia-Pacific (APQN, AUN-QA), Africa (AfriQAN, CAMES), and Latin America (RIACES).

The International Network for Quality Assurance Agencies in Higher Education (INQAAHE) has advanced International Standards and Guidelines for Quality Assurance in Tertiary Education that explicitly address diversification, including cross-border provision, micro-credentials, and online learning. Approximately 800 external QA bodies operate globally, though only a minority have themselves undergone external review against international standards.

2.2 Pre-Tertiary and Vocational Education

Pre-tertiary QA is more heterogeneous. In many systems, school inspection or evaluation frameworks focus on teaching quality, student outcomes, safeguarding, and leadership. Vocational education and training (VET) often combines occupational standards, workplace

assessment, and external verification. National qualifications frameworks (NQFs) have proliferated—UNESCO's Global Inventory documents over 130 countries with NQFs—providing transparency across levels and supporting lifelong learning and recognition of prior learning. International schools and private K-12 providers increasingly seek voluntary international accreditation to signal quality to parents and universities.

2.3 Cross-Cutting Features

Across levels, contemporary QA emphasises: (1) fitness for purpose and enhancement rather than pure compliance; (2) stakeholder involvement; (3) transparency of processes and outcomes; (4) data-informed decision-making; and (5) the protection of academic and educational integrity. ISO 21001:2018 (Educational organizations — Management systems for educational organizations) and ISO/IEC 17011 (Conformity assessment — Requirements for accreditation bodies) provide complementary management-system lenses. These features form the baseline against which AI compatibility must be assessed.

3. Artificial Intelligence Development in Education

AI applications in education span adaptive learning platforms, intelligent tutoring systems, automated feedback and grading, predictive analytics for student success, administrative process automation, and, more recently, generative AI tools that can produce text, code, images, and assessments. UNESCO's Guidance for Generative AI in Education and Research (2023) and subsequent AI Competency Frameworks for students and teachers (2024) advocate a human-centred approach that prioritises human agency, equity, inclusion, and pedagogical purpose.

Empirical and systematic reviews indicate clear opportunities: personalisation at scale, timely feedback, reduced administrative burden on educators, early identification of at-risk learners, and support for accessibility. Simultaneously, challenges are well documented: threats to assessment validity and reliability when generative AI can produce sophisticated outputs; algorithmic bias inherited from training data; opacity of decision-making; data privacy and surveillance risks; unequal access and AI literacy; and potential erosion of critical thinking and academic integrity.

4. Compatibility Analysis: Quality Assurance and AI

4.1 Points of Tension

The most acute tensions arise in assessment and academic integrity. When generative AI can produce work that meets surface-level criteria, traditional product-based assessments may no longer provide valid evidence of student learning. Automated grading systems, while efficient, risk reduced reliability and fairness if not subject to human oversight and bias auditing. High-stakes decisions (admissions, progression, credentialing) made or heavily influenced by AI raise due-process and transparency concerns that classic QA standards did not explicitly address.

Further tensions include the difficulty of assuring quality when AI systems evolve rapidly, the challenge of verifying claims made by institutions about AI-enhanced learning, and the risk that efficiency gains mask declines in deeper learning outcomes.

4.2 Points of Compatibility and Synergy

Compatibility becomes feasible when AI is treated as a domain requiring governance rather than as an external disruptor or an unexamined efficiency tool. Several alignments are evident:

• Data-informed enhancement: QA already values evidence. AI-driven learning analytics, when properly governed, can supply richer, more timely evidence for continuous improvement.

• Transparency and accountability: Core QA principles of transparency can be extended to require disclosure of AI use, explainability of significant automated decisions, and human-in-the-loop requirements for high-stakes processes.

• Stakeholder protection: QA's emphasis on student rights and fairness maps directly onto algorithmic fairness, bias auditing, and equitable access to AI tools.

• Process redesign: Process-oriented, authentic, and dialogic assessments—already recommended in contemporary QA literature—are more resilient to generative AI and can be supported by AI tools used appropriately by both students and educators.

CHEA's Guiding Principles for Artificial Intelligence in Accreditation and Recognition (2025) and emerging ENQA discussions both stress that AI should support, not replace, human judgment. This principle is fully compatible with the foundational logic of quality assurance.

5. An Integrative Framework for AI-Compatible Quality Assurance

Building on existing standards and recent guidance, the following elements constitute a practical integrative framework applicable across educational levels:

5.1 Institutional AI Governance. Institutions should maintain a documented AI governance framework covering purpose, permitted and prohibited uses, data protection, bias mitigation, human oversight, and periodic review. This framework becomes part of the evidence base for external QA.

5.2 Transparency and Disclosure. Students, staff, and external reviewers should be able to identify when and how AI is used in teaching, assessment, admissions, and support services. Disclosure policies form a minimum standard.

5.3 Human-in-the-Loop for High-Stakes Decisions. Credentialing, progression, and significant resource or disciplinary decisions should retain meaningful human accountability. AI may assist but should not autonomously determine outcomes.

5.4 Assessment Validity in AI-Rich Environments. Institutions should demonstrate that assessment designs continue to provide valid evidence of intended learning outcomes, incorporating process evidence, authenticity, and appropriate use of AI by students where permitted.

5.5 Equity, Access, and AI Literacy. QA should examine whether AI tools narrow or widen equity gaps and whether students and educators receive adequate preparation for responsible AI use, consistent with UNESCO competency frameworks.

5.6 Continuous Evaluation and Risk Monitoring. Because AI systems change rapidly, QA processes should include periodic re-evaluation of AI tools and outcomes rather than one-time approval.

These elements can be embedded within existing ESG-style standards, INQAAHE guidelines, or ISO 21001 management systems without requiring entirely new parallel structures.

6. Implications and Recommendations for QAHE

As an international body accrediting institutions across pre-tertiary, higher education, vocational, and online sectors, QAHE is well placed to advance AI-compatible quality assurance. Recommendations include:

• Develop and publish explicit guidance on AI governance expectations within institutional and programmatic accreditation standards, aligned with UNESCO human-centred principles and existing ISO certifications.

• Require evidence of AI use policies, bias-mitigation practices, and human oversight mechanisms as part of self-evaluation and review processes.

• Support accredited institutions through capacity-building resources on AI literacy for educators and leaders, and on assessment redesign.

• Explore the use of AI tools within QAHE's own review processes (for example, completeness checks or pattern detection in documentation) while maintaining human judgment for accreditation decisions.

• Collaborate with regional and international networks (INQAAHE, ENQA, APQN and others) to contribute to the global evolution of AI-related QA standards.

These steps would reinforce QAHE's role as a forward-looking quality assurance partner that helps institutions navigate technological change while protecting educational integrity.

7. Conclusion

World quality assurance systems across educational levels have matured into a diverse but recognisable set of practices centred on transparency, stakeholder involvement, evidence, and the protection of educational purpose. Artificial intelligence development presents both significant opportunities for personalisation, efficiency, and insight, and substantial risks to validity, fairness, and integrity. Compatibility is achievable when QA frameworks evolve to govern AI rather than merely react to it—embedding requirements for transparency, human accountability, equity, and continuous evaluation into existing standards.

For institutions and QA agencies, including QAHE, the task is not to resist AI or to adopt it uncritically, but to ensure that technological innovation remains subordinate to educational aims. A human-centred, standards-aligned approach will allow quality assurance to remain the guarantor of trust in credentials and learning outcomes in an increasingly AI-mediated educational landscape.

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