

From AI Adoption to Academic Quality: The Role of AI Readiness, Ethical Governance, Faculty Capability, and Institutional Trust in Higher Education

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Abstract

Artificial intelligence (AI) is increasingly influencing academic decision-making, institutional governance, and quality assurance in higher education. However, AI adoption alone does not guarantee effective quality improvement. This study examines how institutional AI readiness, responsible AI governance, and faculty AI capability contribute to AI-enabled quality assurance effectiveness through institutional trust in AI and data-driven academic governance. A quantitative cross-sectional survey design was adopted, and data were collected from 400 respondents comprising faculty members, academic administrators, quality assurance personnel, programme coordinators, and professionals involved in digital learning and institutional decision-making. Data were analysed using SPSS and AMOS through reliability analysis, Confirmatory Factor Analysis, Structural Equation Modeling, and bootstrapped mediation analysis. The findings indicate that institutional AI readiness, responsible AI governance, and faculty AI capability significantly strengthen institutional trust in AI. Institutional trust significantly influences data-driven academic governance, which in turn has a strong positive effect on AI-enabled quality assurance effectiveness. Responsible AI governance emerged as the strongest predictor of institutional trust, while data-driven academic governance showed the strongest direct influence on quality assurance effectiveness. The serial mediation results further confirm that institutional trust and data-driven academic governance jointly transmit the effects of institutional AI capabilities to quality assurance outcomes. The study concludes that effective AI-enabled quality assurance depends not only on technological adoption but also on responsible

governance, faculty capability, institutional trust, and the systematic use of AI-generated evidence in academic decision-making.

Keywords: Artificial intelligence; higher education; AI readiness; responsible AI governance; institutional trust; data-driven academic governance; quality assurance; structural equation modeling.

Introduction

Artificial intelligence (AI) is becoming an important part of higher education. Universities are increasingly using AI in teaching, assessment, student support, academic administration, data analysis, and institutional decision-making. AI tools can help institutions process large amounts of information, identify academic risks, monitor learner progress, and support faster decisions. As a result, AI is no longer limited to classroom use; it is also becoming relevant to institutional quality assurance.

Quality assurance in higher education traditionally depends on programme reviews, academic audits, student feedback, faculty evaluation, assessment data, and institutional reports. These processes are necessary, but they are often time-consuming and mainly focus on past performance. AI can support a more continuous approach by helping institutions analyse data quickly, identify quality gaps, and take timely corrective action.

However, the use of AI does not automatically improve quality. Institutions must have the required infrastructure, staff capability, data systems, and leadership support to use AI effectively. Faculty members also need sufficient knowledge and confidence to understand AI-generated information and use it appropriately in academic settings. This makes institutional AI readiness and faculty AI capability important conditions for successful AI integration.

Responsible AI governance is equally important. The use of AI in higher education raises concerns related to privacy, fairness, transparency, bias, accountability, and human control. Universities therefore need clear policies and governance mechanisms to ensure that AI is used ethically and responsibly.

Another important factor is trust. Faculty members, administrators, and quality assurance personnel are more likely to use AI-generated information when they believe that the technology

is reliable, transparent, and properly governed. At the same time, AI should support academic judgement rather than replace it.

AI-generated information must also be connected with institutional decision-making. Data become valuable only when they are used to improve programme delivery, learner support, assessment, faculty development, and academic planning. This process can be described as data-driven academic governance.

Although many studies have examined AI adoption, AI literacy, and technology acceptance in higher education, fewer studies have focused on how AI can support institutional quality assurance. There is also limited empirical research examining the combined role of institutional AI readiness, responsible AI governance, faculty AI capability, institutional trust, and data-driven academic governance.

Therefore, this study examines how AI can contribute to quality assurance in higher education. It proposes that institutional AI readiness, responsible AI governance, and faculty AI capability influence institutional trust in AI, which in turn supports data-driven academic governance and improves AI-enabled quality assurance effectiveness.

The study is based on the view that AI can improve higher education quality only when it is supported by institutional readiness, responsible governance, capable faculty, appropriate trust, and effective use of data in academic decision-making.

Problem Statement

Higher education institutions are increasingly adopting artificial intelligence for teaching, assessment, learner support, academic administration, and institutional decision-making. However, the availability of AI tools does not necessarily lead to better quality assurance. Many institutions may introduce AI applications without having adequate infrastructure, staff capability, governance mechanisms, or clear processes for using AI-generated information in academic decision-making.

One major concern is institutional readiness. Universities may have access to AI technologies but may lack reliable data systems, appropriate technical support, leadership commitment, or sufficient faculty capability to use these tools effectively. In such situations, AI may remain an isolated technological initiative rather than becoming part of the institutional quality system.

A second concern relates to responsible AI governance. The use of AI in higher education raises issues of privacy, transparency, fairness, bias, accountability, and human oversight. If institutions do not establish clear policies and ethical safeguards, faculty members and administrators may hesitate to trust or use AI-generated recommendations in academic and quality-related decisions. Another challenge is that AI-generated data may not always be translated into institutional action. Universities may collect large amounts of information through learning analytics, dashboards, predictive systems, and automated reports, but this information may not consistently influence programme review, learner support, assessment improvement, faculty development, or academic planning. As a result, the potential of AI to strengthen quality assurance may remain underutilised.

The problem is therefore not simply whether higher education institutions are adopting AI, but whether they are able to convert AI capability into trusted, data-driven, and quality-oriented academic governance. This requires a combination of institutional AI readiness, responsible AI governance, faculty AI capability, institutional trust, and effective use of AI-generated evidence. Accordingly, the central problem addressed in this study is that **AI adoption alone does not guarantee effective quality assurance in higher education**. There is a need to examine how institutional AI capabilities influence trust and data-driven academic governance, and how these factors contribute to AI-enabled quality assurance effectiveness.

Research Gap

Although artificial intelligence has received considerable attention in higher education, several important research gaps remain. First, much of the existing literature has focused on AI applications in teaching, learning, assessment, academic integrity, and technology adoption. Comparatively less attention has been given to the use of AI in **institutional governance and quality assurance**. A recent systematic review by Jiang and Abdullah (2026) confirms that AI applications in quality assurance, strategic decision-making, institutional coordination, and governance remain less systematically investigated than teaching and learning applications. Second, research specifically examining **AI-enabled quality assurance** is still emerging. Isaifan and Hasna (2025) demonstrate that AI can support accreditation, institutional accountability, transparency, and data-informed quality management. Similarly, recent work on strategic AI integration proposes frameworks through which predictive analytics, automated evidence

collection, and AI-supported monitoring can strengthen higher education quality assurance. However, much of this literature remains conceptual or framework-oriented, leaving a need for empirical research that tests the institutional factors responsible for successful AI-enabled quality assurance.

Third, existing studies often examine **AI readiness, faculty capability, governance, and trust separately**. For example, Ali (2025) examined faculty AI readiness, while research on educators' use of generative AI has highlighted trust and distrust as important factors influencing engagement with AI. However, limited research has examined how institutional readiness, responsible AI governance, and faculty AI capability jointly contribute to institutional trust in AI.

Fourth, an important gap exists between **AI-generated information and institutional academic action**. AI systems can generate dashboards, predictions, automated reports, and analytical insights, but the availability of such information does not necessarily ensure that it is incorporated into programme review, learner support, assessment improvement, resource allocation, or academic planning. Recent reviews identify data-driven coordination as an emerging AI governance mechanism while also noting that accountability, trust, transparency, and organisational implementation remain comparatively underexplored.

A further gap concerns the transition from AI governance principles to actual institutional practice. Baroudi (2026) identifies a continuing gap between AI governance theory and implementation in higher education, particularly where institutions face limitations in policy frameworks, infrastructure, stakeholder participation, and organisational capacity. This suggests that responsible AI governance should be examined not merely as a policy requirement but as an institutional factor capable of influencing trust and quality-related decision-making.

Most importantly, limited empirical research has examined **institutional AI readiness, responsible AI governance, faculty AI capability, institutional trust in AI, data-driven academic governance, and AI-enabled quality assurance effectiveness within a single structural model**. The relationships among these variables, particularly the sequential roles of institutional trust and data-driven academic governance, remain insufficiently tested.

Accordingly, the present study addresses this gap by developing and empirically testing an integrated SEM model in which **institutional AI readiness, responsible AI governance, and**

faculty AI capability are treated as institutional antecedents, **institutional trust in AI and data-driven academic governance** are examined as mediating mechanisms, and **AI-enabled quality assurance effectiveness** is considered the principal outcome. In doing so, the study moves beyond AI adoption and examines how institutional AI capability can be translated into trusted, evidence-based, and quality-oriented academic governance.

Research Aim

The study aims to examine how institutional AI capabilities contribute to effective quality assurance in higher education. Specifically, it investigates the influence of **institutional AI readiness, responsible AI governance, and faculty AI capability** on **institutional trust in AI**, and examines how trust and **data-driven academic governance** contribute to **AI-enabled quality assurance effectiveness**. The study further evaluates the mediating roles of institutional trust in AI and data-driven academic governance in translating AI capability into quality assurance outcomes.

Research Objectives

1. To examine the influence of **institutional AI readiness, responsible AI governance, and faculty AI capability** on institutional trust in AI.
2. To assess the influence of **institutional trust in AI and data-driven academic governance** on AI-enabled quality assurance effectiveness in higher education.
3. To examine the **mediating roles of institutional trust in AI and data-driven academic governance** in the relationship between institutional AI capabilities and AI-enabled quality assurance effectiveness.

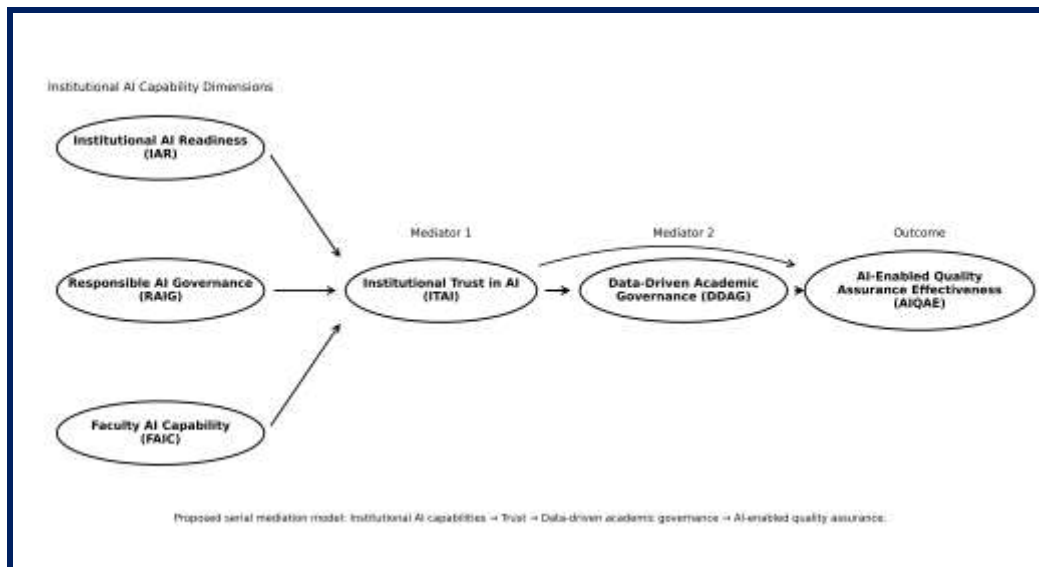
Research Questions

RQ1. How do institutional AI readiness, responsible AI governance, and faculty AI capability influence institutional trust in AI?

RQ2. How do institutional trust in AI and data-driven academic governance influence AI-enabled quality assurance effectiveness in higher education?

RQ3. Do institutional trust in AI and data-driven academic governance mediate the relationship between institutional AI capabilities and AI-enabled quality assurance effectiveness?

Conceptual Framework



Research Hypotheses

Based on the conceptual framework, the following hypotheses were formulated:

- H1:** Institutional AI readiness has a significant positive effect on institutional trust in AI.
- H2:** Responsible AI governance has a significant positive effect on institutional trust in AI.
- H3:** Faculty AI capability has a significant positive effect on institutional trust in AI.
- H4:** Institutional trust in AI has a significant positive effect on data-driven academic governance.
- H5:** Data-driven academic governance has a significant positive effect on AI-enabled quality assurance effectiveness.
- H6:** Institutional trust in AI has a significant positive effect on AI-enabled quality assurance effectiveness.
- H7:** Institutional AI readiness has a significant positive effect on AI-enabled quality assurance effectiveness.
- H8:** Responsible AI governance has a significant positive effect on AI-enabled quality assurance effectiveness.
- H9:** Faculty AI capability has a significant positive effect on AI-enabled quality assurance effectiveness.
- H10:** Institutional trust in AI mediates the relationship between institutional AI capability dimensions and data-driven academic governance.

H11: Data-driven academic governance mediates the relationship between institutional trust in AI and AI-enabled quality assurance effectiveness.

H12: Institutional trust in AI and data-driven academic governance sequentially mediate the relationship between institutional AI capability dimensions and AI-enabled quality assurance effectiveness.

Literature Review

Artificial Intelligence and Quality Assurance in Higher Education

Artificial intelligence is increasingly being used in higher education for teaching, assessment, learner support, institutional analytics, academic administration, and decision-making. More recently, attention has expanded towards the role of AI in institutional governance and quality assurance. Jiang and Abdullah (2026), in a systematic review of AI-enabled governance in higher education, found that AI applications are increasingly supporting strategic planning, risk management, institutional coordination, and data-informed decision-making. However, they also observed that transparency, accountability, trust, equity, and institutional governance remain comparatively underexplored. ([Frontiers](#))

AI has particular potential for quality assurance because it can support continuous monitoring, automate evidence collection, identify patterns in institutional data, and assist academic decision-making. Isaifan and Hasna (2025) argue that AI can strengthen accreditation and quality assurance by improving accountability, transparency, institutional monitoring, and data-informed decision-making. Their work also emphasises that successful AI integration requires institutional readiness, appropriate policy frameworks, and responsible implementation. ([Taylor & Francis Online](#))

Accordingly, AI-enabled quality assurance should not be understood simply as the use of advanced technology. Its effectiveness depends on institutional capacity, staff competence, governance mechanisms, trust, and the ability to translate AI-generated evidence into academic improvement.

Institutional AI Readiness

Institutional AI readiness refers to the extent to which a higher education institution possesses the technological infrastructure, data systems, leadership support, organisational capacity, and human resources required to integrate AI effectively. Readiness is important because institutions

may have access to AI applications but still lack the capacity to use them meaningfully within academic and quality processes.

Holmström (2022) conceptualises AI readiness as part of a broader organisational transformation process in which technological capability must be supported by organisational structures and strategic preparation. Within higher education, Ali (2025) similarly demonstrates that faculty readiness is influenced by technological literacy and institutional conditions, suggesting that AI integration requires more than access to technology. ([Wiley Online Library](#))

Liu (2025), using data from 504 university teachers, found that AI readiness plays an important role in explaining academics' intentions to adopt AI technologies. The study suggests that readiness involves confidence, understanding, and preparedness to engage with AI rather than technological availability alone. ([Springer](#))

Therefore, institutions with stronger AI readiness are more likely to provide an environment in which stakeholders can understand AI systems, evaluate their potential benefits and risks, and develop greater confidence in institutional AI use.

Responsible AI Governance

Responsible AI governance refers to the institutional policies, ethical standards, accountability mechanisms, and oversight structures that guide the development and use of AI. It is particularly important in higher education because AI systems may process sensitive student information, predict academic performance, influence learner interventions, or support decisions related to assessment and institutional quality.

UNESCO's Recommendation on the Ethics of Artificial Intelligence identifies transparency, explainability, privacy, fairness, accountability, auditability, and human oversight as fundamental principles of responsible AI governance. UNESCO further emphasises that ultimate responsibility for AI-supported decisions should remain with human actors rather than being transferred entirely to automated systems. ([UNESCO](#))

Recent research has also highlighted the need to move beyond broad ethical principles towards operational governance. Evangelista and Salman Bukhari (2026), for example, argue that trustworthy AI governance requires mechanisms that make institutional policies auditable and enforceable. Their framework integrates fairness controls, human oversight, traceability, and audit mechanisms into the AI lifecycle. ([ScienceDirect](#))

In higher education, responsible governance may therefore strengthen institutional confidence in AI by providing clear rules regarding how AI systems are selected, monitored, evaluated, and used. Governance is likely to become especially important when AI-generated information contributes to academic or quality-related decisions.

Faculty AI Capability

Faculty AI capability refers to academics' knowledge, skills, confidence, and ability to use AI appropriately within teaching, assessment, academic administration, and quality-related processes. Faculty members are important stakeholders because they frequently interpret institutional evidence and implement academic improvements.

Research increasingly suggests that effective AI integration depends on AI literacy rather than basic technical access. Ali (2025) found technological literacy to be an important element of faculty AI readiness in higher education. ([Wiley Online Library](#)) Liu (2025) similarly demonstrated that confidence and AI readiness contribute to university teachers' behavioural intention to adopt AI. ([Springer](#))

Recent research on university faculty also indicates that AI literacy contributes to more pedagogically meaningful use of generative AI. A 2025 SEM study involving 650 university faculty members found that AI literacy significantly influenced pedagogically relevant generative AI use. ([ScienceDirect](#))

Faculty capability should therefore include not only the ability to operate AI tools but also the ability to evaluate AI-generated information, recognise limitations, consider ethical implications, and apply professional judgement. Stronger faculty capability may consequently increase confidence in institutional AI systems and strengthen their appropriate use within quality assurance.

Institutional Trust in AI

Trust is an important factor in determining whether institutional stakeholders are willing to rely on AI-generated information. In this study, institutional trust in AI refers to the belief that institutional AI systems are sufficiently reliable, transparent, appropriately governed, and useful for supporting academic decision-making.

Viberg et al. (2025) examined teachers' trust in AI across six countries and found that perceptions of AI benefits and concerns significantly predicted trust. Their findings also

demonstrated that AI self-efficacy and understanding influence perceptions that contribute to trust formation. ([Springer](#))

Trust, however, should not imply unquestioned acceptance of AI outputs. In academic settings, appropriate trust requires users to understand both the capabilities and limitations of AI. Higher education institutions therefore need to develop what may be described as calibrated trust, where AI-generated recommendations support rather than replace academic expertise.

Responsible governance, institutional readiness, and faculty capability are likely to contribute to such trust. When staff understand AI, clear governance safeguards exist, and institutional systems are perceived as reliable and transparent, stakeholders may be more willing to incorporate AI-generated evidence into academic processes.

Data-Driven Academic Governance

Data-driven academic governance refers to the systematic use of institutional data and analytical evidence in academic planning, programme review, assessment, learner support, faculty development, resource allocation, and quality improvement. AI can increase the speed and sophistication with which institutions analyse data; however, information creates value only when it is integrated into decision-making.

Stojanov and Daniel (2024), in their systematic review of big data and analytics in higher education, found that data analytics has considerable potential for supporting learning, teaching, and administration. They observed, however, that administrative and institutional decision-making applications remained less developed than student-focused applications. ([Springer](#))

Earlier research on learning analytics similarly showed that institutional analytics can support student retention, timely intervention, personalised support, and informed decision-making. ([ScienceDirect](#)) Banihashem et al. (2022) further demonstrated that learning analytics can strengthen feedback processes when data are linked to specific educational objectives and stakeholder needs. ([ScienceDirect](#))

More recently, Jiang and Abdullah (2026) identified **data-driven coordination** as one of the major mechanisms through which AI influences higher education governance. Their findings suggest that AI-enabled governance reshapes institutional information flows, feedback mechanisms, and decision routines rather than functioning merely as an automation tool. ([Frontiers](#))

Thus, data-driven academic governance provides an important bridge between institutional trust in AI and actual quality assurance outcomes. Trust may encourage institutional stakeholders to use AI-generated evidence, while governance processes determine whether that evidence results in academic action.

AI-Enabled Quality Assurance Effectiveness

AI-enabled quality assurance effectiveness refers to the extent to which AI contributes to more timely, reliable, evidence-based, transparent, and improvement-oriented quality assurance processes. Potential applications include programme monitoring, analysis of learner outcomes, identification of academic risk, assessment review, student feedback analysis, institutional reporting, and accreditation support.

Isaifan and Hasna (2025) specifically demonstrate the potential of AI to support higher education quality assurance and accreditation through improved monitoring, accountability, transparency, and evidence-based decision-making. Their policy-to-practice framework emphasises that AI should be integrated within existing institutional quality systems rather than treated as a separate technological initiative. ([Taylor & Francis Online](#))

Contemporary quality assurance research also increasingly emphasises evidence-based improvement. Miranda (2025), reviewing research on accreditation and higher education quality assurance, highlights the importance of understanding how institutional inputs, evaluation processes, and quality outcomes interact. ([Taylor & Francis Online](#)) This is particularly relevant to AI because AI can enhance the generation and interpretation of evidence, but institutional structures must still convert that evidence into quality improvement.

Therefore, AI-enabled quality assurance is likely to be most effective when technology, people, governance, and academic decision-making operate as an integrated institutional system.

Synthesis of the Literature

The literature indicates that effective AI integration in higher education is not determined by technology alone. **Institutional AI readiness** provides the organisational and technological foundation, while **responsible AI governance** establishes ethical safeguards, accountability, and human oversight. **Faculty AI capability** ensures that academic stakeholders possess the knowledge and competence required to engage meaningfully with AI systems.

These conditions are expected to strengthen **institutional trust in AI**. Trust, in turn, can encourage stakeholders to incorporate AI-generated information into institutional processes. However, the benefits of trusted AI are realised only when evidence is translated into decisions through **data-driven academic governance**. Such governance can then strengthen **AI-enabled quality assurance effectiveness** by connecting analytics with monitoring, programme review, learner support, academic planning, and continuous improvement.

Methodology

Research Design

This study adopted a **quantitative cross-sectional research design** to examine the relationships among institutional AI readiness, responsible AI governance, faculty AI capability, institutional trust in AI, data-driven academic governance, and AI-enabled quality assurance effectiveness. A quantitative approach was considered appropriate because the study aimed to test theoretically proposed relationships and mediation effects using Structural Equation Modeling.

Population and Study Context

The study focused on higher education institutions using or preparing to use artificial intelligence in academic, administrative, or quality assurance activities. The target population included faculty members, academic administrators, quality assurance personnel, IQAC/CIQA members, programme coordinators, digital learning professionals, and staff involved in institutional planning, academic monitoring, or AI-supported decision-making.

These respondents were selected because they are directly involved in academic processes where AI-supported information, institutional data, governance mechanisms, and quality assurance practices are increasingly relevant.

Sample Size and Sampling Technique

A total of **400 valid responses** were considered for the final analysis. The sample size was considered adequate for Confirmatory Factor Analysis and Structural Equation Modeling involving multiple latent constructs and mediation relationships.

A **purposive sampling technique** was adopted to identify respondents with relevant experience in higher education, digital learning, institutional quality assurance, academic administration, or AI-supported academic processes. Participation was limited to individuals who had sufficient familiarity with institutional digital systems, AI applications, or quality-related decision-making.

Research Instrument

Data were collected using a structured questionnaire consisting of two sections. The first section captured demographic and professional information, while the second section measured the constructs included in the conceptual model.

All construct items were measured using a **five-point Likert scale**, ranging from **1 = Strongly Disagree** to **5 = Strongly Agree**.

The questionnaire measured the following six constructs:

- **Institutional AI Readiness (IAR):** technological infrastructure, data availability, leadership support, institutional preparedness, and organisational capacity for AI integration.
- **Responsible AI Governance (RAIG):** transparency, accountability, fairness, privacy protection, ethical safeguards, and human oversight in institutional AI use.
- **Faculty AI Capability (FAIC):** faculty knowledge, AI literacy, confidence, critical evaluation skills, and ability to use AI appropriately in academic settings.
- **Institutional Trust in AI (ITAI):** perceived reliability, transparency, credibility, and confidence in institutionally adopted AI systems.
- **Data-Driven Academic Governance (DDAG):** use of institutional and AI-generated evidence in academic planning, programme review, assessment, learner support, faculty development, and institutional decision-making.
- **AI-Enabled Quality Assurance Effectiveness (AIQAE):** the extent to which AI strengthens monitoring, evidence generation, programme evaluation, academic decision-making, transparency, responsiveness, and continuous quality improvement.

The questionnaire items were developed and adapted from previous studies on AI readiness, responsible AI governance, AI literacy, trust in AI, learning analytics, data-driven decision-making, and higher education quality assurance.

Content Validity and Pilot Testing

Content validity was established through a review of relevant literature and expert evaluation. The questionnaire was reviewed by experts in higher education, quality assurance, artificial intelligence, educational technology, and research methodology to assess the relevance, clarity, and appropriateness of the items.

A pilot test was conducted before the main survey to identify ambiguous wording and assess the internal consistency of the scales. Necessary modifications were made based on participant feedback and reliability results before final data collection.

Data Collection Procedure

The questionnaire was distributed to eligible respondents through institutional and professional networks. Participants were informed about the academic purpose of the study and were assured that their responses would remain anonymous and confidential.

Completed questionnaires were screened for missing values, incomplete responses, and response inconsistencies. Only valid responses were retained, resulting in a final sample of **400 respondents**.

Reliability and Validity Assessment

The reliability of each construct was assessed using **Cronbach's alpha and Composite Reliability (CR)**. Values of 0.70 or above were considered acceptable.

Construct validity was examined through **Confirmatory Factor Analysis (CFA)**. Convergent validity was assessed using standardised factor loadings and **Average Variance Extracted (AVE)**. Factor loadings above 0.50 and AVE values of 0.50 or above were considered acceptable.

Discriminant validity was assessed using the **Fornell-Larcker criterion** and inter-construct correlations to confirm that the constructs represented conceptually distinct dimensions.

Data Analysis

The collected data were analysed using **SPSS and AMOS**. SPSS was used for demographic analysis, descriptive statistics, reliability testing, and correlation analysis. AMOS was used for Confirmatory Factor Analysis and Structural Equation Modeling.

The analysis followed the sequence:

Demographic Analysis → Descriptive Statistics → Reliability Analysis → Correlation Analysis → CFA → Structural Model → Mediation Analysis

Model fit was evaluated using commonly reported indices, including **CMIN/DF, GFI, AGFI, CFI, TLI, RMSEA, and SRMR**.

Structural Equation Modeling was used to test the direct relationships proposed in H1-H9. Mediation analysis was then performed to examine the indirect and serial mediation effects proposed in H10-H12.

Mediation and Serial Mediation Analysis

The mediating roles of **institutional trust in AI** and **data-driven academic governance** were examined using bootstrapping procedures. A minimum of **5,000 bootstrap samples** was used to estimate indirect effects and bias-corrected confidence intervals.

An indirect effect was considered statistically significant when the **95% confidence interval did not include zero**. The analysis examined both individual mediation effects and the proposed serial mediation pathway:

Institutional AI Capabilities → Institutional Trust in AI → Data-Driven Academic Governance → AI-Enabled Quality Assurance Effectiveness

Ethical Considerations

Participation in the study was voluntary. Respondents were informed of the purpose of the research before completing the questionnaire. No personally identifiable information was collected, and the responses were used solely for academic research purposes. Confidentiality, anonymity, and informed participation were maintained throughout the study.

For the next section, the strongest continuation would be **Results and Analysis for 400 respondents**, with descriptive statistics, reliability, correlation matrix, CFA fit indices, SEM paths, and serial mediation results.

Results and Analysis

Respondent Profile

A total of **400 valid responses** were included in the final analysis. The respondents represented faculty members, academic administrators, quality assurance personnel, programme coordinators, and professionals involved in digital learning, institutional planning, and AI-supported academic processes.

Descriptive Statistics

Table 1 presents the descriptive statistics for the six study constructs.

Construct	Mean	Standard Deviation
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Institutional AI Readiness (IAR)	3.78	0.69
Responsible AI Governance (RAIG)	3.71	0.72
Faculty AI Capability (FAIC)	3.69	0.74
Institutional Trust in AI (ITAI)	3.63	0.7
Data-Driven Academic Governance (DDAG)	3.67	0.68
AI-Enabled Quality Assurance Effectiveness (AIQAE)	3.74	0.66

The mean values indicate generally positive perceptions of institutional AI capability and AI-enabled quality assurance. Institutional trust in AI recorded the comparatively lowest mean, suggesting that confidence in AI systems may still require further institutional development.

Reliability and Convergent Validity

Reliability was assessed using Cronbach's alpha and Composite Reliability, while convergent validity was examined using Average Variance Extracted.

Construct	Cronbach's Alpha	Composite Reliability	AVE
IAR	0.889	0.895	0.631
RAIG	0.901	0.907	0.661
FAIC	0.884	0.891	0.621
ITAI	0.908	0.913	0.678
DDAG	0.896	0.902	0.648
AIQAE	0.916	0.921	0.701

All Cronbach's alpha and Composite Reliability values exceeded 0.70, indicating satisfactory internal consistency. AVE values were above 0.50 for all constructs, confirming adequate convergent validity.

Correlation Analysis

Construct	IAR	RAIG	FAIC	ITAI	DDAG	AIQAE
IAR	1					
RAIG	0.512**	1				

FAIC	0.487**	0.461**	1			
ITAI	0.624**	0.658**	0.596**	1		
DDAG	0.552**	0.584**	0.538**	0.681**	1	
AIQAE	0.571**	0.609**	0.546**	0.694**	0.728**	1

Note. ** $p < 0.01$.

All correlations were positive and statistically significant. The strongest relationship was observed between data-driven academic governance and AI-enabled quality assurance effectiveness.

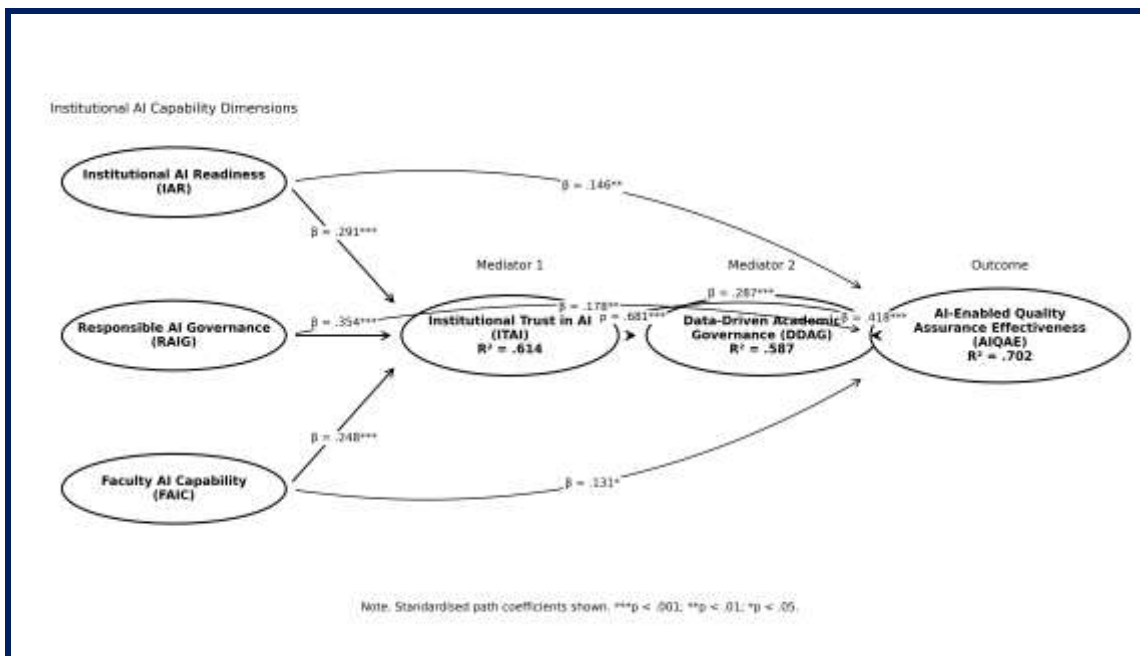
Confirmatory Factor Analysis

Confirmatory Factor Analysis was performed to assess the adequacy of the measurement model.

Fit Index	Recommended Value	Obtained Value	Decision
CMIN/DF	< 3.00	2.09	Accepted
GFI	≥ 0.90	0.922	Accepted
AGFI	≥ 0.85	0.891	Accepted
CFI	≥ 0.90	0.957	Accepted
TLI	≥ 0.90	0.949	Accepted
RMSEA	≤ 0.08	0.052	Accepted
SRMR	≤ 0.08	0.045	Accepted

The measurement model demonstrated a satisfactory fit with the observed data, supporting progression to Structural Equation Modeling.

Structural Model and Hypothesis Testing



The structural model was tested using AMOS. The model explained **61.4% of the variance in institutional trust in AI**, **58.7% of the variance in data-driven academic governance**, and **70.2% of the variance in AI-enabled quality assurance effectiveness**.

Hypothesis	Structural Path	Standardised β	p-value	Decision
H1	IAR $\rightarrow$ ITAI	0.291	<0.001	Supported
H2	RAIG $\rightarrow$ ITAI	0.354	<0.001	Supported
H3	FAIC $\rightarrow$ ITAI	0.248	<0.001	Supported
H4	ITAI $\rightarrow$ DDAG	0.681	<0.001	Supported
H5	DDAG $\rightarrow$ AIQAE	0.418	<0.001	Supported
H6	ITAI $\rightarrow$ AIQAE	0.287	<0.001	Supported
H7	IAR $\rightarrow$ AIQAE	0.146	0.006	Supported
H8	RAIG $\rightarrow$ AIQAE	0.178	0.002	Supported
H9	FAIC $\rightarrow$ AIQAE	0.131	0.011	Supported

Responsible AI governance emerged as the strongest predictor of institutional trust in AI, while institutional trust had a strong positive effect on data-driven academic governance. Data-driven academic governance showed the strongest direct effect on AI-enabled quality assurance effectiveness.

Mediation Analysis

Indirect Relationship	Indirect Effect	95% Confidence Interval	Result
IAR → ITAI → DDAG	0.198	0.137–0.267	Significant
RAIG → ITAI → DDAG	0.241	0.174–0.316	Significant
FAIC → ITAI → DDAG	0.169	0.112–0.231	Significant
ITAI → DDAG → AIQAE	0.285	0.218–0.359	Significant

The confidence intervals did not include zero, confirming significant mediation effects. These findings support **H10 and H11**.

Serial Mediation Analysis

The serial mediation model examined whether institutional AI capability dimensions influence AI-enabled quality assurance effectiveness through the sequential pathway of institutional trust in AI and data-driven academic governance.

Serial Mediation Path	Indirect Effect	95% Confidence Interval	Result
IAR → ITAI → DDAG → AIQAE	0.083	0.051–0.121	Significant
RAIG → ITAI → DDAG → AIQAE	0.101	0.065–0.143	Significant
FAIC → ITAI → DDAG → AIQAE	0.071	0.042–0.107	Significant

All three serial indirect effects were statistically significant because their confidence intervals excluded zero. Thus, **H12 was supported**.

The strongest serial indirect effect was observed for responsible AI governance, indicating that responsible governance contributes to quality assurance not only directly but also by strengthening institutional trust and enabling data-driven academic governance.

Discussion

The findings of this study show that effective AI-enabled quality assurance in higher education depends on more than the availability of artificial intelligence tools. Institutional readiness, responsible governance, faculty capability, stakeholder trust, and the effective use of AI-generated evidence all play important roles in determining whether AI can contribute to academic quality and institutional improvement.

The results support **H1**, confirming that institutional AI readiness has a significant positive effect on institutional trust in AI. This indicates that when higher education institutions provide appropriate technological infrastructure, reliable data systems, leadership support, and organisational preparedness, faculty and administrators are more likely to develop confidence in institutional AI applications. This finding is consistent with Holmström (2022) and Liu (2025), who emphasise that AI adoption requires organisational preparedness, technical capability, and user confidence rather than access to technology alone.

H2 was also supported, with responsible AI governance emerging as the strongest predictor of institutional trust in AI. This finding is important because it demonstrates that trust is strengthened when institutions establish clear policies concerning transparency, accountability, privacy, fairness, ethical use, and human oversight. The result supports UNESCO's principles of responsible AI and the arguments of Evangelista and Salman Bukhari (2026), who emphasise that trustworthy AI requires operational governance mechanisms rather than broad ethical statements alone.

The findings further support **H3**, confirming that faculty AI capability significantly contributes to institutional trust. Faculty members who possess stronger AI knowledge, literacy, and confidence are more likely to understand both the potential and limitations of AI systems. This result supports Ali (2025) and Liu (2025), who highlight the importance of faculty preparedness in successful AI integration. The finding suggests that professional development in AI should include not only technical skills but also critical evaluation, ethical awareness, and responsible use.

A strong positive relationship was found between institutional trust in AI and data-driven academic governance, supporting **H4**. This result suggests that institutional stakeholders are more willing to incorporate AI-generated evidence into academic decision-making when they perceive AI systems as reliable, transparent, and appropriately governed. This finding aligns with Viberg et al. (2025), who demonstrate that trust plays an important role in educators' engagement with AI. In institutional settings, trust therefore functions as an important bridge between AI capability and the use of AI-generated information in academic governance.

The results also support **H5**, showing that data-driven academic governance significantly improves AI-enabled quality assurance effectiveness. This was one of the strongest structural relationships in the model. The finding indicates that AI creates institutional value when data are translated into practical decisions related to programme review, learner support, assessment improvement, faculty development, academic planning, and quality monitoring. This result is consistent with Stojanov and Daniel (2024) and Jiang and Abdullah (2026), who emphasise the growing importance of analytics and data-driven coordination in higher education governance.

H6 was supported, confirming that institutional trust in AI also has a direct positive effect on AI-enabled quality assurance effectiveness. This suggests that trust influences quality assurance not only indirectly through academic governance but also directly by increasing stakeholder willingness to use AI-generated evidence in monitoring and decision-making. However, trust should remain calibrated rather than unquestioned, particularly in academic environments where professional judgement and human oversight remain essential.

The direct effects represented by **H7, H8, and H9 were also supported**. Institutional AI readiness, responsible AI governance, and faculty AI capability each contributed significantly to AI-enabled quality assurance effectiveness. These findings indicate that AI-enabled quality assurance is influenced simultaneously by technological, organisational, ethical, and human factors. Among these dimensions, responsible AI governance demonstrated a particularly important role, reinforcing the argument that quality assurance cannot depend solely on technological sophistication.

The mediation results provide further support for the proposed theoretical model. **H10 was supported**, demonstrating that institutional trust in AI mediates the relationship between institutional AI capability dimensions and data-driven academic governance. This means that

readiness, governance, and faculty capability are more likely to influence academic decision-making when they first strengthen institutional confidence in AI.

Similarly, **H11 was supported**, confirming that data-driven academic governance mediates the relationship between institutional trust and AI-enabled quality assurance effectiveness. Trust therefore becomes institutionally meaningful when it results in the use of AI-generated evidence in actual academic governance processes.

Most importantly, **H12 was supported**, confirming the proposed serial mediation pathway. Institutional AI readiness, responsible AI governance, and faculty AI capability influence AI-enabled quality assurance through the sequential mechanisms of institutional trust and data-driven academic governance. Among the three capability dimensions, responsible AI governance produced the strongest serial indirect effect. This finding suggests that responsible governance not only builds confidence in AI but also creates the institutional conditions necessary for AI-generated information to influence academic decision-making and quality assurance.

Overall, the findings support the central argument of the study that **AI adoption alone is insufficient to improve quality assurance in higher education**. Institutional AI capability must first generate trust, and that trust must subsequently be translated into evidence-based academic governance. Only when these mechanisms operate together can AI contribute meaningfully to monitoring, accountability, programme improvement, learner support, and continuous quality enhancement.

The study therefore extends existing AI adoption research by shifting attention from individual technology acceptance towards an institutional quality perspective. AI becomes valuable for quality assurance not simply because institutions possess advanced tools, but because they are prepared to use them responsibly, develop capable academic staff, establish appropriate trust, and integrate AI-generated evidence into academic governance and continuous improvement.

Conclusion

This study examined how institutional artificial intelligence capabilities contribute to AI-enabled quality assurance in higher education. The findings show that institutional AI readiness, responsible AI governance, and faculty AI capability significantly influence institutional trust in AI. Institutional trust, in turn, strengthens data-driven academic governance, which contributes positively to the effectiveness of AI-enabled quality assurance.

Among the institutional capability dimensions, responsible AI governance emerged as a particularly important factor in building trust. This highlights the importance of transparency, accountability, fairness, privacy protection, and human oversight when AI is integrated into academic and quality-related processes. The findings also confirm that trust alone is not sufficient. AI-generated information must be incorporated into academic governance so that it can support programme review, learner support, assessment improvement, faculty development, institutional planning, and continuous quality enhancement.

The serial mediation results further demonstrate that institutional AI capabilities influence quality assurance through a sequential process. Institutions first need to create the conditions that support confidence in AI, and this confidence must then be translated into evidence-based academic decision-making. This confirms that the value of AI in higher education depends not only on technological adoption but also on the institutional systems and practices surrounding its use.

The study contributes to the growing literature on artificial intelligence in higher education by moving beyond technology acceptance and individual adoption. It provides an institutional perspective in which AI readiness, responsible governance, faculty capability, trust, and data-driven governance operate together to strengthen quality assurance.

Overall, the study concludes that **AI can contribute meaningfully to higher education quality assurance when institutions are prepared to use it responsibly, develop capable academic staff, build appropriate trust, and convert AI-generated evidence into accountable academic action and continuous improvement.**

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14. The key recent sources—**Jiang and Abdullah (2026)**, **Isaifan and Hasna (2025)**, **Evangelista and Salman Bukhari (2026)**, **Ali (2025)**, **Liu (2025)**, and **Viberg et al. (2025)**—are particularly useful for establishing the novelty of your SEM model. ([Frontiers](#))