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Transforming Student Evaluation: Overcoming Higher Education Teacher Impasse in the Age of Intelligent Systems

تطوير تقييم الطلاب في التعليم العالي: تحديات وآفاق في عصر الأنظمة الذكية

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Abstract

The growing integration of artificial intelligence (AI) in higher education is transforming both teaching practices and the principles of student assessment. This study explores the challenges of AI-supported evaluation, focusing on academic integrity, the authenticity of student work, and instructors' digital readiness. Using a mixed-methods approach, data were collected from 20 university teachers across diverse disciplines. Qualitative data from semi-structured interviews captured instructors' perspectives on AI-related assessment concerns and professional development needs, while quantitative data from an online survey measured confidence in AI use, perceived threats to integrity, and the effectiveness of institutional support. Thematic and descriptive analyses revealed a tension between AI's pedagogical potential and its disruptive effects on conventional assessment models. The findings highlighted the need for innovative evaluation strategies, focused faculty training, and coherent institutional policies to guide responsible AI integration in higher education assessment.

Keywords: Academic Integrity; AI-Mediated Learning; Digital Literacy; Assessment Design; Higher Education

ملخّص

يشهد التوظيف المتزايد للذكاء الاصطناعي في التعليم العالي تحولًا ملحوظًا في كلٍّ من ممارسات التدريس ومبادئ تقويم الطلبة. تأتي هذه الدراسة لتستكشف تحديات التقويم المدعوم بالذكاء الاصطناعي، مع التركيز على النزاهة الأكاديمية، وأصالة أعمال الطلبة، والاستعداد الرقمي لدى أعضاء هيئة التدريس.

وباستخدام منهجية البحث المختلط، جُمعت البيانات من 20 أستاذًا جامعيًا من تخصصات متنوعة. وقد أتاحت المقابلات شبه المنظَّمة فهم تصورات المدرسين حول قضايا التقويم المرتبطة بالذكاء الاصطناعي واحتياجاتهم للتطوير المهني، بينما قاس الاستبيان الإلكتروني مستوى الثقة في استخدام الذكاء الاصطناعي، والتهديدات المتصوَّرة للنزاهة الأكاديمية، وفاعلية الدعم المؤسسي. وكشفت التحليلات الموضوعية والوصفية عن توتر بين الإمكانات التربوية للذكاء الاصطناعي وتأثيراته المربِكة على نماذج التقويم التقليدية،

وأبرزت نتائج الدراسة عن الحاجة إلى استراتيجيات تقويم مبتكرة، وبرامج تدريب مركَّزة لأعضاء هيئة التدريس، وسياسات مؤسسية متكاملة لتوجيه الدمج المسؤول للذكاء الاصطناعي في تقويم التعليم العالي

الكلمات المفتاحية: النزاهة الأكاديمية؛ دمج الذكاء الاصطناعي؛ محو الأمية الرقمية؛ تحديات التقييم؛ التعليم العالي

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Introduction

The rapid evolution of digital technologies has transformed higher education worldwide, reshaping teaching, learning, and assessment practices. Digital tools, ranging from online platforms and learning management systems to collaborative applications and interactive educational resources, have redefined how knowledge is accessed, shared, and evaluated. In this global context, technology is not merely a supportive instrument but a central actor in shaping educational experiences. Among these innovations, artificial intelligence (AI) represents a particularly significant turning point. AI applications, including intelligent tutoring systems, automated grading tools, and natural language processing software, are increasingly capable of analyzing student work, generating personalized feedback, and even producing academic content. Such developments promise adaptive, student-centered learning experiences, offering unprecedented opportunities for engagement, efficiency, and individualized instruction.

However, alongside these opportunities, AI introduces substantial challenges. Traditional educator roles, particularly in assessment, are being redefined as AI systems produce outputs that blur the line between human- and machine-generated work. Evaluating student performance in this context requires new approaches to ensure fairness, credibility, and academic integrity. Research globally indicates that while AI can enhance efficiency, it also complicates assessment processes, prompting educators to reconsider both their strategies and ethical responsibilities. These challenges are especially pronounced in contexts where teacher training, institutional readiness, and policy frameworks are still evolving to accommodate rapidly advancing technologies.

In Algeria, higher education is experiencing a similar, though distinct, digital transformation. Universities have increasingly adopted digital platforms, particularly in response to the COVID-19 pandemic and the shift toward hybrid and remote learning. While these initiatives have expanded access and promoted flexible learning, the integration of AI remains limited and uneven. Research in the Algerian context suggests that educators face both infrastructural and pedagogical challenges, including limited access to advanced digital tools, inadequate training in AI applications, and gaps in institutional policies regarding academic integrity and assessment practices. These factors create a unique environment in which AI's potential is tempered by practical and contextual constraints. Consequently, understanding AI's role in assessment within Algerian higher education requires attention not only to the technology itself but also to the broader educational, cultural, and institutional context.

Within this framework, the present study focuses on the intersection of AI integration and assessment practices in Algerian higher education. While AI offers potential benefits for personalized learning and operational efficiency, it simultaneously disrupts traditional assessment paradigms. Educators now face the dual challenge of harnessing AI's advantages while ensuring that student work remains authentic and assessment outcomes accurately reflect learning. This

tension forms the core problem addressed in this research, articulated through the following research questiponsquestion:

1. How do AI tools influence assessment practices in Algerian higher education?
2. How do educators perceive academic integrity, fairness, and authenticity in AI-supported assessment?
3. In what ways does AI integration reshape educators' roles and responsibilities in assessment?
4. What strategies can be implemented to ensure academic integrity, fairness, and effective learning outcomes in AI-assisted assessment?

The research is grounded in the hypothesis that, although AI integration introduces significant challenges in evaluating authentic student work, it also provides opportunities to reimagine assessment practices. Specifically, with adequate teacher training, institutional support, and innovative assessment designs emphasizing learning processes, the risks posed by AI can be mitigated, while its pedagogical benefits can be fully leveraged.

The proliferation of AI tools in higher education globally and the increasing digitalization of Algerian universities create an urgent need to understand how AI affects educational assessment in settings where digital transformation is still unfolding. This need is particularly relevant in Algeria, where educators may lack sufficient resources, training, or guidance to adapt to technological disruptions. Preliminary literature reviews further indicate a gap in studies examining AI's impact on assessment in the Algerian context, particularly regarding strategies that educators and institutions can adopt to respond effectively.

The objectives of the study are threefold: to analyze current AI applications in assessment, identify the challenges they present to educators, and explore practical strategies for integrating AI while maintaining academic standards. The research aims to provide insights for teachers, policymakers, and administrators seeking to develop guidelines and support mechanisms for ethical and effective AI use in higher education.

The significance of the study lies in its contribution to understanding how digital transformation and AI specifically influence educational practices in Algeria. It provides a framework for balancing technological innovation with academic integrity and offers practical guidance for educators navigating a rapidly evolving digital landscape. The study is limited to AI applications that directly impact assessment practices in Algerian higher education, focusing primarily on educators' perspectives and institutional frameworks. Students' experiences are considered mainly in relation to assessment outcomes. Key terms include artificial intelligence (AI), referring to systems capable of performing tasks requiring human-like intelligence; assessment practices, denoting methods and procedures for evaluating student learning; and academic integrity, encompassing principles of honesty, fairness, and responsibility in scholarly work.

In sum, this research situates itself at the intersection of global digital transformation, AI integration, and Algerian higher education. By examining how

AI reshapes assessment and educator roles within a specific national context, it seeks to provide a comprehensive understanding of both opportunities and challenges, ultimately informing strategies to enhance fairness, effectiveness, and integrity in academic evaluation.

Literature Review

The integration of artificial intelligence (AI) in higher education has generated significant interest among researchers, educators, and policymakers, particularly regarding its potential to enhance learning outcomes, streamline assessment, and support teacher decision-making. This literature review examines current theoretical frameworks, empirical studies, and ethical considerations related to AI in education, with a focus on personalized learning, learning analytics, and teacher evaluation.

Assessment and learning analytics defined

Assessment in education refers to systematic processes of gathering, interpreting, and using evidence to make informed judgments about student learningachievement. According to Nitko and Brookhart (2019:5), assessment **"is the process of collecting, synthesizing, and interpreting information to aid in decision making"**, Effective assessment practices prioritize validity, fairness, and alignment with learning goals, ensuring that what is measured accurately reflects meaningful educational outcomes. In contrast, learning analytics involves the collection and analysis of large sets of educational data to understand and optimize learning and the environments in which it occurs. Siemens and Long (2011:4) define learning analytics as **"the measurement, collection, analysis, and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs"**. While assessment traditionally focuses on individual learner performance, learning analytics expands this view by leveraging data patterns to support personalized feedback, early intervention, and evidence-based instructional design, thereby shaping both formative and summative educational decisions (Siemens, 2013:14).

Traditional vs. AI-Integrated Teacher Assessment

Traditional teacher assessment relies heavily on instructors' professional judgment, personal observations, and structured evaluation rubrics to gauge student learning (Brookhart, 2013:12). While this approach emphasizes context, fairness, and relational trust, it can be time-consuming and limited in scalability. In contrast, AI-integrated assessment offers rapid feedback, adaptive learning paths, and automated scoring, providing efficiency and personalization (García-López & Trujillo-Liñán, 2025:210). However, scholars caution that AI systems may introduce hidden biases, reduce interpretive nuance, and necessitate careful ethical oversight to ensure that assessment remains valid, fair, and meaningful (Zhang, 2025).

AI and Personalized Learning in Education

Research increasingly demonstrates that artificial intelligence (AI) plays a transformative role in personalized learning by enabling instructional adaptation to

learners' individual needs, preferences, and performance levels. Systematic reviews emphasize that **"AI systems adapt instructional content to match individual learner profiles in real time, enhancing personalization and learner engagement"** (Hariyanto et al., 2025:13). Through continuous data collection and analysis, AI-driven systems can adjust content difficulty, pacing, and feedback mechanisms, thereby supporting more responsive and learner-centered educational experiences. Similarly, AI-powered platforms provide "tailored, learner-centered experiences" by integrating intelligent tutoring systems and predictive analytics to optimize learning outcomes and sustain student engagement (Taşkın, 2025:113). From a theoretical perspective, these developments challenge traditional one-size-fits-all instructional models by introducing dynamic learning pathways that evolve in response to learner behaviour and performance data. Luckin et al. (2021:45) argue that **"AI can serve as an ancillary tool to augment teachers' pedagogical skills by offering real-time feedback and adaptive learning analytics)"**. This resonates with Vygotsky's Zone of Proximal Development (ZPD), which emphasizes scaffolding tailored to individual learners. Namaziandost and Rezai (2024:112) add a cautionary note, stating, **"AI-driven personalization must be accompanied by safeguards for anonymity and fairness to ensure equitable learning outcomes"**. Together, these perspectives highlight both the pedagogical potential and the ethical responsibility of AI-driven personalization.

AI, Learning Analytics, and Instructional Insight

Beyond simple automation, AI provides strong tools that help educators make decisions based on data. According to Luckin et al. (2021:47), adaptive analytics can give teachers clear and useful information about students' progress, engagement, and learning behaviours. These insights support learning analytics frameworks (Siemens, 2013), which encourage teaching practices based on evidence and data. AI systems can identify patterns, predict learning outcomes, and help teachers adjust instruction to meet individual student needs. This supports personalized learning and helps students manage their own learning more effectively. García-López and Trujillo-Liñán (2025) emphasize that despite AI's capacity to deliver individualized feedback and support instructional efficiency, its integration entails a range of emerging risks. These include reduced student independence and ethical concerns. Relying only on AI for evaluation may ignore important human and contextual factors in learning. Therefore, effective and responsible assessment requires a balanced approach that combines AI-based data with qualitative feedback from teachers, students, and peers.

Teacher Evaluation: Balancing Quantitative and Qualitative Data

The integration of AI into teacher evaluation systems has created debate about how to balance objective data with human judgment. AI-based measures can improve consistency and handle large amounts of information, but they cannot fully represent what happens in the classroom. García-López and Trujillo-Liñán (2025:42) explain that **"algorithmic precision should not be confused with**

pedagogical understanding," highlighting the limits of relying only on numbers. Their study shows that mixed-methods approaches work best, as they combine statistical results with written reflections and qualitative feedback. According to the authors, **"qualitative accounts add meaning and context that numerical data alone cannot provide"** (p, 57). This view is supported by assessment theory, which emphasizes that valid evaluation must measure what truly matters in teaching practice (Messick, 1995:745). In addition, Brookhart (2013:12) emphasizes that fairness and quality in classroom evaluation depend on teachers' situated professional judgment, interpretation of evidence within context, and use of multiple sources of information rather than relying solely on numerical data.

Ethical Considerations in AI Integration

Ethics emerges as a central issue in the literature concerning the integration of artificial intelligence in education. Namaziandost and Rezai (2024:118) caution, "**ethical, legal, and social considerations—particularly issues of privacy, validity, and responsible data use—must be placed at the forefront of educational AI adoption**". Similarly, García-López and Trujillo-Liñán (2025:210) consider transparency and fairness being essential regulatory principles to ensure accountable and equitable AI-driven practices. These positions resonate strongly with the Ethics of Care in Education, which focuses on trust, fairness, and caring relationships between teachers and students. Therefore, ethical guidelines are crucial for using AI in ways that are fair, safe, and trustworthy. In the absence of clear and enforceable ethical frameworks, AI systems risk reinforcing existing biases, compromising learners' privacy, and weakening institutional trust. Consequently, ethical governance is not peripheral but foundational to the sustainable and just integration of AI in educational contexts.

Professional Development and Policy Guidelines

Scholars emphasize the importance of equipping educators with the skills needed to critically engage with artificial intelligence rather than simply adopting it unreflectively. Córdova-Esparza (2025:82) asserts, **"Continuous professional development is essential to ensure educators can critically engage with AI tools rather than passively adopt them"**, underscoring the need for deliberate and sustained training. This view conforms to Transformative Learning Theory (Mezirow, 1991), which highlights the role of critical reflection and perspective transformation in professional growth, suggesting that educators must examine underlying assumptions about technology and learning to integrate AI meaningfully. Without such reflective engagement, teachers may misinterpret AI-generated data, rely on automated outputs without scrutiny, or inadvertently reinforce inequitable practices. Accordingly, comprehensive policy guidelines and structured training programs are essential not only to build digital literacy but also to support educators in making informed, ethical decisions about AI use in educational contexts (Córdova-Esparza, 2025; Mezirow, 1991).

In sum, the idea that AI offers immense promise in personalizing learning, automating tasks, and enriching teacher evaluation. Yet, it also raises pressing

ethical and professional challenges. Scholars consistently emphasize the need for balanced evaluation frameworks, transparency, fairness, and sustained professional development. AI should be understood not as a replacement for educators but as a powerful ancillary tool that, when implemented responsibly, can enrich teaching and learning.

Methodology and Materials

This section outlines the methodological approach used in this exploratory study of AI-integrated assessment in higher education. The following subsections describe the research design, participants, instruments, procedure, ethical considerations, data analysis, and steps taken to ensure the validity and trustworthiness of the findings.

Research Design

This study adopts an exploratory mixed-methods design to investigate the emerging challenges associated with AI-integrated assessment in higher education. The study does not aim to test predetermined hypotheses; rather, it seeks to generate initial insights into issues related to academic integrity, authenticity of student work, and instructors' digital preparedness. The integration of qualitative and quantitative approaches enables a comprehensive and nuanced exploration of instructors' perceptions, institutional readiness, and current assessment practices.

Participants and Institutional Context

The study was conducted at Ahmed Zabana University, a public Algerian institution undergoing gradual but uneven digital transformation. Although digitalization and artificial intelligence are increasingly promoted at the national level, their implementation at the university is still uneven. Access to digital tools and technical support differs from one faculty to another, showing clear differences in resources and internet access.

The use of AI in teaching and assessment is still not well organized or regulated. There are few clear institutional rules or guidelines on how AI should be used in education. As a result, its use depends mostly on individual teachers, which leads to different levels of practice and skills in using digital tools. Training opportunities for staff are also limited.

In this context, the study included 20 university instructors selected from different faculties. They were chosen to reflect different subjects, teaching experience, and levels of digital skills. All participants were actively teaching and assessing students at the time of the study, which allowed them to share relevant and informed views on the use of AI in assessment.

Instruments

Two complementary instruments were employed in line with the exploratory design:

- ***Semi-structured interviews*:** The interview protocol was designed to elicit in-depth reflections on instructors' experiences with AI-integrated assessment. Key areas of focus included academic integrity concerns, authenticity of student work, pedagogical adaptations, and professional development needs. The semi-

structured format allowed flexibility for participants to elaborate on their experiences while ensuring consistency across interviews.

- ***Online survey questionnaire*:** The questionnaire consisted of Likert-scale items organized into sections covering demographic information, confidence in using AI tools, perceived threats to academic integrity, institutional support, and professional development. The survey aimed to capture quantifiable patterns in instructors' attitudes, readiness, and perceived risks associated with AI use in assessment.

Procedure

Data collection was conducted using secure online platforms. Participants were informed about the purpose of the study and relevant ethical considerations prior to participation. Semi-structured interviews were conducted individually, focusing on participants' experiences with artificial intelligence in assessment contexts. All interviews were transcribed verbatim. to ensure accuracy.

The online survey was subsequently distributed to the same group of participants. Respondents completed the questionnaire at their convenience within a specified timeframe, ensuring systematic and consistent data collection across both qualitative and quantitative components.

Ethical Considerations

The study adhered to established ethical standards for research involving human participants. Informed consent was obtained from all participants prior to data collection. Participants were assured of the voluntary nature of their participation and their right to withdraw at any stage. Confidentiality and anonymity were strictly maintained by removing identifying information from transcripts and survey responses. Data were securely stored and used exclusively for research purposes. Additionally, care was taken to ensure that participants' responses were reported in a manner that prevents identification and minimizes any potential risk.

Data Analysis

Qualitative data obtained from the interviews were analyzed using thematic coding to identify recurring patterns, challenges, and emergent themes related to AI-mediated assessment. Quantitative data from the survey were analyzed using descriptive statistics, including means, standard deviations, and frequency distributions, to assess instructors' confidence in using AI tools, perceived threats to academic integrity, and the adequacy of institutional support.

Validity and Reliability

Given the exploratory mixed-methods design, several strategies were employed to enhance the rigor of the study. For the qualitative component, credibility was supported through careful transcription of interviews and systematic thematic analysis. Consistency in data collection was ensured using a semi-structured interview protocol. Transferability was addressed by providing a clear description of the research context and participant characteristics.

For the quantitative component, internal consistency was promoted through the structured design of the questionnaire and the use of clearly defined Likert-scale items. Although the study is exploratory and based on a relatively small sample, the use of descriptive statistics provides a reliable overview of emerging trends.

Overall, the integration of qualitative and quantitative data enabled methodological triangulation, enhancing the robustness of the findings and supporting a more comprehensive understanding of AI-related assessment challenges.

Results

This section presents the findings derived from both qualitative interviews and quantitative survey data concerning AI-integrated assessment in higher education. The section reveals key patterns and challenges shaping current assessment practices in AI-mediated learning environments.

Section 1: Respondents' Demographic Information

The variables provide contextual grounding for interpreting instructors' perceptions of AI-integrated assessment. Table 1 presents the findings for each item.

Table 1: Demographic Characteristics of the Sample (N = 20)

Variable	Category	Frequency	Percentage
Gender	Female	11	55%
	Male	9	45%
Age (years)	30–39	6	30%
	40–49	9	45%
	50–58	5	25%

The sample consisted of 20 faculty members from various faculties within Ahmed Zabana higher education institution. Participants' ages ranged from 30 to 58 years (M ≈ 42). Regarding gender distribution, 11 participants (55%) were female and nine (45%) were male.

Table 2: Faculty Representation of the Sample

Faculty / Department	Humanities & Social Sciences	8	40%
	Sciences & Technology	6	30%
	Letters &Languages	4	20%
	Other	2	10%

Faculty representation was diverse, including Humanities and Social Sciences (40%), Sciences and Technology (30%), Letters and foreign Languages (20%), and other disciplines (10%), ensuring variability in disciplinary perspectives.

Table 3: Teaching Experience of the Sample

Teaching Experience	0–5 years	5	25%
	6–10 years	6	30%
	11–15 years	5	25%
	16+ years	4	20%

Regarding teaching experience, five instructors (25%) reported 0–5 years of experience, six (30%) reported 6–10 years, five (25%) reported 11–15 years, and four (20%) reported more than 16 years of teaching experience.

Table 4: Level of Courses Taught of the Sample

Level of Courses Taught	Undergraduate	10	50%
	Graduate	4	20%
	Both	6	30%

With respect to the level of courses taught, 10 participants (50%) taught undergraduate courses only, four (20%) taught graduate courses only, and six (30%) taught both undergraduate and graduate courses.

Section 2: Confidence in Using AI Tools

This section reports instructors' self-perceived competence and comfort in employing AI tools for teaching and assessment. Descriptive statistics were computed for three confidence-related items measured on a 5-point Likert scale. Table 2 presents the means and standard deviations for each item.

Table 5: Respondents' Confidence in Using AI Tools

Item	M	SD
Confidence in general teaching using AI	3.40	0.79
Confidence in using AI for assessment	3.10	0.85
Confidence in interpreting AI-generated data	3.05	0.83
Aggregated Confidence Score	3.25	0.72

Overall, participants reported a moderate level of confidence in using AI for instructional and assessment purposes *(M = 3.25, SD = 0.72).* Confidence in integrating AI into general teaching activities was the highest *(M = 3.40, SD = 0.79),* suggesting that instructors are relatively comfortable using AI as a pedagogical support tool. However, confidence in using AI specifically for assessment was slightly lower *(M = 3.10, SD = 0.85),* indicating greater hesitation when AI is applied to evaluative decision-making. The lowest mean score was observed for interpreting AI-generated data *(M = 3.05, SD = 0.83),* reflecting a need for further training in analytical and data-literacy skills.

Notably, instructors affiliated with the Faculties of Technology and Sciences reported comparatively higher confidence across all three items than their counterparts in humanities and social sciences. This trend suggests that disciplinary background and prior exposure to digital tools may positively influence instructors' readiness to adopt AI in assessment contexts.

Section 3: Perceived Threats to Academic Integrity

This section investigates instructors' views on how AI affects authenticity, plagiarism, and assessment reliability. The findings inform the extent to which AI disrupts traditional integrity frameworks (See Table 3)**.**

Table 6: Perceived Threats to Academic Integrity

Item	M	SD	Agree	Neutral	Disagree
AI increases plagiarism risk	3.70	0.60	65%	20%	15%
AI use may compromise fairness in assessment	3.55	0.68	60%	25%	15%

The respondents expressed significant concern regarding potential adverse effects of AI on academic integrity. A majority (65%) agreed that AI increases plagiarism risk, while 20% were neutral and 15% disagreed. The mean threat perception score was *M = 3.70 (SD = 0.60)*, reflecting elevated apprehension among instructors that AI could undermine fairness if not properly regulated. Notably, responses to the item "AI use may compromise fairness in assessment" yielded *M =3.55 (SD = 0.68*), further highlighting teachers' awareness of ethical and equity challenges.

Section 4: Institutional Support and Development Needs

This section assesses participants' perceptions of existing institutional policies, training opportunities, and technical assistance related to AI use. The results highlight organizational strengths and areas requiring strategic improvement.

Table 7: Institutional Support and Development Needs

Item	M	SD
Adequacy of institutional guidance on AI integration	3.15	0.75
Sufficiency of professional development	3.05	0.70
Effectiveness of policies addressing ethical issues	2.90	0.82
Need for additional training and ethical guidelines	–	–

Regarding institutional support, mean ratings indicated moderate satisfaction. Participants rated the adequacy of institutional guidance on AI integration at *M = 3.15 (SD = 0.75)* and the sufficiency of professional development at *M = 3.05 (SD = 0.70).* The effectiveness of policies addressing ethical issues received the lowest mean score *(M = 2.90, SD = 0.82),* underlining perceived gaps in formal frameworks. A majority (70%) agreed that additional training and clear ethical guidelines are necessary to ensure responsible and equitable use of AI in assessment.

Section 5: Open-Ended Feedback: Main Challenges

Participants reported multiple challenges in implementing AI for assessment. A major concern involved difficulties in interpreting AI-generated outputs, as instructors expressed uncertainty about scores and analytic feedback. Ethical and academic integrity issues were also salient, including fears of algorithmic bias,

plagiarism, and fairness in AI-mediated evaluation. Additional barriers included limited familiarity with AI tools, insufficient technical support, and time constraints for learning and integration. Some participants further noted collegial resistance and students' over-reliance on AI, which complicated effective adoption.

To moderate these challenges, instructors advocated structured professional development through workshops, mentoring, and tutorials focused on AI use and data literacy. They also stressed the need for clear institutional policies to ensure ethical, transparent assessment practices. Enhanced technical infrastructure, peer collaboration, and curriculum redesign support were recommended to promote responsible and effective AI integration in higher education assessment.:

Generally, the data suggest that while instructors demonstrate moderate confidence in AI use, there is considerable concern regarding integrity risks and a perceived need for stronger institutional support structures. These findings provide quantitative evidence for targeted professional development and policy refinement to support ethical and effective AI integration in higher education assessment.

Thematic Analysis

The semi-structured interviews with 20 higher education faculty members revealed three major themes regarding AI integration in assessment. First, participants reported significant challenges in using AI tools, particularly the difficulty of interpreting AI-generated data and scores. Many expressed concerns about ethical issues, including algorithmic bias, threats to fairness, and potential violations of academic integrity. The sample, also, cited a lack of familiarity with AI systems, limited institutional technical support, and resistance from both colleagues and students as additional obstacles. These challenges indicate that the integration of AI in assessment is not purely technical but is intertwined with pedagogical, ethical, and organizational dimensions.

Second, participants emphasized the importance of institutional support and professional development. Structured workshops, systematic tutorials, and ongoing mentoring were frequently recommended to build instructors' competence and confidence. Several instructors highlighted the need for clear institutional policies and ethical guidelines to safeguard fairness and transparency in AI-mediated assessment. Access to reliable AI platforms and technical assistance was also cited, along with opportunities for peer collaboration and sharing of best practices, suggesting that social and organizational support is critical for effective adoption.

Finally, interviews revealed respondents' perceptions of the changing role of the educator in AI-assisted assessment. Instructors recognized a shift from traditional evaluative functions toward facilitation, interpretation, and critical oversight of AI outputs. Many highlighted the need to ensure that students remain reflective and independent, rather than over-reliant on automated feedback. They also acknowledged that their professional judgment and ethical awareness remain central, emphasizing that AI tools should augment rather than replace human decision-making.

In sum, the thematic analysis demonstrates that while University teachers are cautiously optimistic about AI's potential to enhance assessment efficiency and personalization, they face tangible challenges in technical competence, ethical responsibility, and institutional support. The findings suggest that comprehensive professional development, clear policy frameworks, and collaborative support mechanisms are essential to enable responsible, equitable, and pedagogically sound use of AI in higher education assessment.

Discussion

The present study provides an exploratory analysis of higher education instructors' perceptions of AI integration in assessment, revealing a complex interplay between emerging pedagogical opportunities and persistent structural and ethical concerns. Quantitative findings indicated moderate levels of confidence in using AI tools for teaching and assessment (M = 3.25, SD = 0.72), with notably lower confidence in interpreting AI-generated outputs (M = 3.05, SD = 0.83). Rather than showing a simple lack of skills, this hesitation reflects a deeper uncertainty about AI systems. Teachers are expected to understand and use results produced by tools that are not always clear and that change quickly. This aligns with prior research suggesting that AI adoption in education is often constrained not only by technical proficiency but also by limited conceptual understanding of algorithmic processes and decision-making logic (Córdova-Esparza, 2025).

Concerns regarding academic integrity and fairness emerged as particularly pronounced, with a majority of respondents perceiving AI as increasing the risk of plagiarism and assessment manipulation. However, these concerns should be interpreted critically rather than as inherent consequences of AI use. Existing scholarship (Cotton et al., 2023; Eaton, 2022; Zawacki-Richter et al., 2019; Bretag & Harper, 2024) argues that such risks are often amplified by unclear assessment design and insufficient institutional regulation**,** rather than by AI technologies themselves. In this sense, the findings reflect not only anxiety about technological misuse but also deeper uncertainties about how assessment frameworks can adapt to AI-mediated environments.

The qualitative findings extend this interpretation by highlighting that instructors' challenges are embedded within institutional and systemic constraints, particularly limited training opportunities, insufficient technical support, and a lack of clear ethical guidelines. These conditions suggest that confidence in AI is not an individual attribute but is instead structurally mediated; reinforcing arguments in the literature that successful AI integration depends on institutional readiness and policy coherence rather than isolated practitioner competence. These findings and are supported by existing studies (Córdova-Esparza, 2025; Mezirow, 1991), which emphasize that effective AI integration in higher education depends primarily on institutional readiness and coherent policy frameworks rather than individual competence alone.

Importantly, participants' accounts of a shifting educator role—from evaluator to facilitator and critical monitor of AI-supported learning—signal a broader pedagogical transformation. This transition resonates with transformative

learning perspectives, which emphasize reflective adaptation in response to disruptive technological change. It also aligns with assessment scholarship that positions educators as central agents in designing learning environments that support valid and meaningful evaluation processes (Brookhart, 2013). Recent studies further confirm this shift, highlighting how AI integration is redefining teaching and assessment roles towards more facilitative and oversight-oriented practices (Zhang, 2025). However, the present study also indicates that such a shift remains largely aspirational, as educators continue to struggle with balancing AI assistance with the preservation of critical thinking, student autonomy, and academic integrity.

Taken together, the findings suggest that AI integration in higher education assessment should not be framed merely as a technological enhancement, but rather as a socio-technical transformation requiring coordinated institutional, pedagogical, and ethical responses. While AI offers potential benefits such as efficiency and personalized feedback, these advantages are currently constrained by weak policy frameworks, uneven digital literacy, and limited professional development. Addressing these challenges requires moving beyond individual training initiatives toward comprehensive institutional strategies that explicitly define the role of AI in assessment while safeguarding academic integrity, fairness, and educator agency.

Limitations of the Study and Future Research

This study has several limitations that should be acknowledged when interpreting the findings. First, the research was conducted with a relatively small sample of 20 instructors from a single institution, Ahmed Zabana University. While this allowed for in-depth exploration, it limits the generalizability of the results to other higher education contexts in Algeria or beyond.

Second, the study relies on self-reported data from surveys and interviews, which may be influenced by participants' perceptions, attitudes, and potential social desirability bias. As a result, the findings reflect perceived rather than directly observed practices of AI use in assessment.

Third, the cross-sectional design captures participants' views at a single point in time. Given the rapid evolution of AI technologies and institutional responses, these perceptions may change over time, limiting the temporal stability of the findings. Finally, although the mixed-methods approach provided complementary insights, the integration of qualitative and quantitative data remained primarily descriptive, without advanced statistical modeling or longitudinal tracking.

Future research should address these limitations by expanding the sample size and including multiple institutions to improve generalizability. Longitudinal studies are also recommended to track how perceptions and practices evolve over time as AI becomes more embedded in higher education. In addition, future studies could incorporate classroom observations, performance-based measures, or document analysis to complement self-reported data. Further research may also explore students' perspectives and institutional policy frameworks to provide a more comprehensive understanding of AI integration in assessment practices.

Conclusion

This study examined the integration of artificial intelligence (AI) in higher education assessment, focusing on teachers' confidence, perceived risks, and institutional support needs. The findings revealed that while instructors demonstrated moderate confidence in using AI for instructional and evaluative purposes, their ability to interpret AI-generated data remained limited. The instructors expressed significant concerns regarding academic integrity, fairness, and ethical implications, emphasizing that AI use, if unregulated, can unintentionally intensify inequities and compromise trust in assessment processes. Thematic analysis of semi-structured interviews further elucidated the complex landscape of AI integration. Participants identified technical, pedagogical, and ethical challenges, including difficulty in interpreting AI outputs, potential biases, and limited institutional support. Instructors underscored the need for structured professional development, clear ethical guidelines, peer collaboration, and reliable technical assistance, suggesting that individual competence alone is insufficient for responsible AI adoption. Importantly, faculty members perceived their roles evolving from traditional evaluators to facilitators and critical overseers, responsible for ensuring that AI complements rather than replaces professional judgment and fosters student reflection and independent learning.

The study demonstrates that successful AI integration in higher education requires a holistic approach that combines skill development, policy frameworks, and organizational support. Institutions must prioritize ethical oversight, provide ongoing training, and cultivate collaborative practices to mitigate risks while maximizing the pedagogical benefits of AI. By addressing these dimensions, AI can enhance assessment efficiency, offer personalized learning opportunities, and strengthen educator-student engagement without compromising fairness or integrity.

In conclusion, AI presents both opportunities and challenges in higher education assessment. Achieving meaningful and equitable integration depends on fostering critical AI literacy among educators, clear institutional policies, and a supportive infrastructure, ensuring that AI serves as a tool to augment human judgment rather than replace it. Future research should explore longitudinal impacts of AI adoption and investigate strategies to optimize both educator agency and student outcomes in AI-mediated learning environments.

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