

ONLINE ASSESSMENT AND ACADEMIC INTEGRITY ISSUES IN THE AGE OF AI TOOLS

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online assessment, academic integrity, generative AI, AI tools, assessment validity, authentic assessment, academic misconduct, higher education

Article History

Received: 18 January 2026

Accepted: 25 February 2026

Published: 15 March 2026

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Abstract

Online assessment has moved from an emergency response during the COVID-19 period to a permanent feature of blended, distance and technology-supported education. At the same time, generative artificial intelligence tools have changed the conditions under which online assessment is designed, completed, submitted and judged. Tools capable of producing essays, code, summaries, presentations, data analysis, images and feedback now challenge conventional assumptions about authorship, originality, student effort and valid evidence of learning. This paper examines online assessment and academic integrity issues in the age of AI tools through an integrative literature-based research design. It synthesises recent scholarship, policy guidance and assessment-reform literature from 2022 to 2026, supported by foundational work on assessment validity, constructive alignment and academic integrity. The paper argues that the main issue is not simply student cheating, nor is it solved by surveillance or AI-detection tools alone. The deeper issue is assessment validity: whether the submitted work still provides reliable evidence that the student has achieved the intended learning outcomes. The findings identify seven recurring priorities for education systems: AI-aware assessment design, transparent AI-use rules, process-based evidence, oral and interactive verification, academic integrity education, equitable access and institutional governance. Major challenges include contract cheating, ghostwriting by AI, unreliable detection, privacy concerns, student confusion, inconsistent policy, staff workload, unequal digital access and the risk of over-policing learners. The paper concludes that online assessment should be redesigned rather than merely defended. Sustainable academic integrity requires a balanced framework that combines authentic assessment, human judgement, student AI literacy, clear declarations, responsible technology use and continuous review of assessment evidence.

1. INTRODUCTION

1.1 Background of the Study

Assessment is one of the strongest signals of what an education system values. Students usually organise their effort around what will be assessed, how it will be judged and what consequences will follow. Online assessment has therefore become a central issue in contemporary education because it changes the location, timing, supervision and evidence conditions of assessment. It can make assessment more flexible and accessible, but it can also increase risks related to identity verification, collaboration boundaries, plagiarism, technical failure and unequal access to devices or connectivity.

The rapid expansion of online learning during and after the COVID-19 disruption normalised many digital assessment formats, including learning management system quizzes, online examinations, e-portfolios, take-home assignments, video presentations, discussion forums, digital projects and remote viva voce assessments. These formats are now used in schools, colleges, universities and professional education. The permanent question is no longer whether online assessment should exist. The question is how online assessment can remain valid, fair, secure and educationally meaningful when students have immediate access to powerful digital tools.

Generative artificial intelligence has made this question more urgent. Since the public release of advanced large language models, students can use AI systems to draft essays, solve problems, summarise readings, translate text, generate code, improve grammar, create images, prepare slides and simulate feedback. UNESCO (2023) describes the need for human-centred governance of generative AI in education, including attention to agency, inclusion, equity, privacy and capacity building. TEQSA (2023) similarly argues that AI is an urgent catalyst for assessment reform because it affects not only how learning is assessed but also what is worth assessing.

Academic integrity is traditionally associated with honesty, trust, fairness, respect, responsibility and courage. In online settings, these values must be translated into practical systems for assessment design, student support, technology use and

decision making. The presence of AI tools complicates academic integrity because not all AI use is dishonest. AI may be used as a writing tutor, accessibility support, brainstorming tool, code assistant or feedback aid. The integrity issue depends on whether AI use is permitted, whether it is acknowledged, whether it replaces the student's required performance and whether the final evidence still reflects the intended learning outcomes.

This paper therefore treats online assessment and academic integrity as a design problem, an ethical problem and an institutional governance problem. It does not assume that stricter surveillance alone can solve the issue. Surveillance may reduce some forms of misconduct, but it can also create privacy concerns, anxiety and inequitable conditions. Similarly, AI detectors may appear attractive, but the literature increasingly warns that detection is technically uncertain, vulnerable to false positives and insufficient as a primary integrity strategy. The more durable response is to redesign assessment so that it captures process, reasoning, judgement, reflection and situated performance.

1.2 Statement of the Problem

Online assessment was often introduced faster than institutions could redesign their academic integrity systems. Many institutions transferred face-to-face examinations and written assignments into digital formats without fully reconsidering what evidence those assessments produced. As a result, some online assessments remain vulnerable to impersonation, unauthorised collaboration, contract cheating, plagiarism, AI-assisted ghostwriting and inappropriate use of external tools. The problem has intensified because AI tools can produce fluent and apparently original work that may not be detected by traditional plagiarism systems.

The central problem is that many online assessments still assume a stable connection between submitted product and student competence. In the age of AI tools, that connection cannot be assumed. A submitted essay may show that a prompt was well written, not that the learner can analyse literature independently. A coding solution may show that an AI tool

generated correct syntax, not that the student understands algorithmic reasoning. A polished report may show editing assistance, not authentic research skill. This creates a validity problem: the assessment may measure tool use or outsourcing rather than the targeted learning outcome.

A second problem is policy inconsistency. Some teachers prohibit all AI use, some permit limited editing support, some encourage AI experimentation and others provide no guidance. Students may therefore face different rules across courses within the same institution. This inconsistency increases confusion and can produce unintentional misconduct. It also weakens trust because students may believe that peers are receiving unfair advantage in courses where AI guidance is unclear.

A third problem is the over-reliance on detection and punishment. Detection can have a role in investigation, but it cannot carry the whole burden of academic integrity. False accusations can damage student trust, and weak detection can give staff a false sense of security. A punitive approach also ignores the educational responsibility to teach students how to use AI ethically, critically and transparently. Institutions need a more balanced model that combines prevention, education, assessment redesign and proportionate enforcement.

1.3 Aim, Objectives and Research Questions

The aim of this paper is to examine online assessment and academic integrity issues in the age of AI tools and to propose practical strategies for designing fair, valid and AI-aware assessment systems.

The objectives are to: (a) explain the relationship between online assessment, academic integrity and generative AI; (b) identify major integrity risks created or intensified by AI tools; (c) analyse the limitations of AI detection and remote proctoring; (d) synthesise assessment practices that preserve validity and fairness; (e) propose an AI-aware framework for teachers, institutions and policymakers; and (f) provide practical appendices for policy, declarations and assessment redesign.

The research questions guiding the paper are: (1) What academic integrity issues arise in online

assessment in the age of AI tools? (2) How do AI tools affect assessment validity, authorship and evidence of learning? (3) What are the limitations of detection-based and surveillance-based responses? (4) Which assessment-design practices can support academic integrity in AI-rich learning environments? (5) What institutional policies and supports are required for sustainable implementation?

1.4 Significance of the Study

This study is significant for teachers because it translates the current AI-integrity debate into classroom-level and course-level assessment decisions. Teachers need practical guidance on when AI should be prohibited, when it may be allowed, how students should declare its use and how assessment evidence can be strengthened through drafts, oral checks, authentic tasks and reflective process records.

The study is significant for students because unclear rules create unnecessary risk. Students need explicit expectations about acceptable and unacceptable AI use. They also need academic integrity education that treats AI literacy as part of responsible learning rather than a hidden or informal practice. Clear guidance can reduce misconduct and support students who want to use digital tools ethically.

The study is significant for institutions because academic integrity cannot be managed only by individual teachers. Institutions need coordinated policy, assessment review, staff development, student support, digital privacy safeguards and quality assurance mechanisms. The literature indicates that many institutions have moved from emergency bans to more nuanced AI policies, but implementation remains uneven across disciplines and assessment types.

The study is significant for policymakers and quality assurance agencies because online assessment and AI use now affect public trust in qualifications. Assessment reform must preserve the credibility of degrees and certificates while preparing learners for workplaces where AI tools are already embedded. A policy that ignores AI is unrealistic, while a policy that permits AI without

standards risks weakening the meaning of academic achievement.

1.5 Scope, Delimitations and Definitions

The scope of this paper covers online assessment in school, college, higher education and professional learning contexts, with emphasis on higher education because most recent AI-integrity

literature is concentrated there. The paper focuses on generative AI tools, academic integrity, assessment validity and assessment design. It does not report primary survey or interview data. It is delimited to a literature-based synthesis and practical framework development.

Table 1: Operational Definitions of Key Terms

Term	Operational meaning in this paper
Online assessment	Assessment that is designed, delivered, submitted, marked or verified through digital platforms or internet-based systems.
Academic integrity	The ethical commitment to honest, fair, responsible and transparent learning, assessment and scholarship.
Generative AI	AI systems that can produce new text, code, images, audio, video, feedback, analysis or other outputs from prompts.
Assessment validity	The extent to which an assessment task provides credible evidence of the intended learning outcome.
AI-assisted misconduct	Unauthorised or undisclosed use of AI that replaces the student's required performance or breaches assessment rules.
Authentic assessment	Assessment that requires students to apply knowledge and skills in realistic, meaningful or professional contexts.
Process evidence	Evidence of how work was produced, such as drafts, logs, annotations, version history, oral explanation and reflection.

2. Literature Review

2.1 Evolution of Online Assessment

Online assessment developed from earlier forms of computer-based testing, distance education assignments and digital learning management systems. Its contemporary forms are more diverse. They include objective quizzes, timed online examinations, open-book tests, take-home essays, simulations, portfolios, collaborative documents, coding tasks, digital lab reports, video demonstrations, peer assessment and oral verification through video conferencing. This diversity means that online assessment is not a single method. It is an assessment environment with different risks and affordances.

The main strengths of online assessment are flexibility, speed of feedback, accessibility of resources, scalability and data generation. Learning management systems can show submission patterns, quiz performance, feedback timelines and engagement data. Students can complete some tasks asynchronously, and teachers

can use digital rubrics, comments and analytics. For learners in remote or working contexts, online assessment can reduce geographical and scheduling barriers.

The main weaknesses relate to control and evidence. In a physical classroom examination, the institution has greater control over identity, materials and interaction. In online assessment, students may complete work in private spaces with access to search engines, communication platforms, AI tools and paid services. This does not make online assessment automatically weak. It means that assessment design must match the reality of the environment. A closed-book memory task delivered online without adequate security is likely to be fragile. An authentic, open-resource task with process evidence and oral explanation may be more defensible.

Online assessment also raises equity questions. Students differ in device quality, internet stability, quiet study space, disability support, language confidence and digital literacy. A technically valid

online assessment may still be unfair if some students cannot access the required platform or if proctoring software creates anxiety, bias or privacy concerns. Assessment reform must therefore balance integrity and inclusion. A secure assessment that excludes vulnerable learners fails an important educational standard.

2.2 Academic Integrity in Digital Learning Environments

Academic integrity in digital environments includes familiar misconduct issues such as plagiarism, collusion, impersonation, fabrication and contract cheating. Online conditions can make some of these easier to attempt and harder to observe. Students can share screenshots of test questions, use messaging applications during assessments, purchase assignments, access unauthorised notes or submit work created by another person. The challenge is not only technological. It is also motivational, cultural and pedagogical. Students are more likely to breach integrity when assessment is perceived as irrelevant, unfair, overloaded, poorly explained or disconnected from learning.

Academic integrity should therefore be understood as more than rule enforcement. It requires a culture in which students understand why integrity matters, teachers design meaningful assessment, and institutions apply consistent procedures. Bretag (2016) and Dawson (2020) treat academic integrity and assessment security as systemic responsibilities rather than isolated disciplinary events. This perspective is especially relevant online because purely reactive enforcement cannot keep pace with changing technologies.

The age of AI tools makes the boundary between support and misconduct more complex. Spellcheck, grammar correction, translation tools and citation managers have long supported student writing. Generative AI extends this support into planning, drafting, reasoning and synthesis. A student who uses AI to improve grammar after producing original analysis may be using a support tool. A student who submits an AI-generated essay as personal analysis is misrepresenting authorship and learning. The

policy challenge is to distinguish acceptable support, limited collaboration with AI and prohibited substitution of student performance.

2.3 Generative AI and the Problem of Authorship

Generative AI disrupts academic authorship because it can produce fluent, coherent and original-looking content without copying from one source. Traditional plagiarism tools are built mainly to compare submitted text with existing text. AI-generated writing may not match existing sources closely, so it can evade similarity detection even when the student has not produced the work independently. Bittle and El-Gayar (2025) describe GenAI as offering educational benefits while also creating significant academic honesty risks, including ghostwritten assignments and forms of cheating that are difficult to detect with conventional tools.

Authorship is not only a technical matter. It is also an educational matter. Assessment asks students to demonstrate knowledge, skill and judgement. If AI performs the intellectual work, the submitted product may not represent the learner's competence. This problem is strongest in unsupervised online tasks where the product is the only evidence. Essays, code, reports, lesson plans and literature reviews are vulnerable when assessment does not require drafts, sources of decision making, oral defence or contextualised application.

At the same time, a complete ban on AI may be unrealistic and educationally limited. Many professional environments now use AI tools for drafting, data analysis, customer communication, coding, design and decision support. Graduates may need to know how to use AI ethically, verify outputs, identify bias, protect data and remain accountable for final work. This creates a tension between protecting assessment evidence and preparing students for AI-rich work. The solution is not one universal rule. Different outcomes require different AI-use conditions.

2.4 AI Detection, Remote Proctoring and Their Limits

AI-detection tools attempt to estimate whether text was generated by a machine. They can be useful as one signal, but the literature warns against treating them as decisive proof. Detection models can produce false positives, especially when writing is formulaic, translated, edited, highly structured or produced by non-native speakers. They can also produce false negatives when AI output is paraphrased, edited or generated by newer models. This means that detection should support inquiry, not replace academic judgement and due process.

Remote proctoring attempts to reproduce examination supervision through webcams, screen monitoring, browser lockdown, identity checks and behaviour flags. It can reduce some forms of

misconduct in timed tests, but it also introduces privacy, accessibility and stress concerns. It may disadvantage students with unstable internet, shared rooms, disabilities, neurodivergence or cultural concerns about camera monitoring. It may also shift institutional attention from assessment quality to surveillance intensity.

The strongest limitation of both detection and proctoring is that they are defensive tools. They address symptoms of fragile assessment rather than the underlying question of whether the task is appropriate for an AI-rich environment. A detection-based system assumes that cheating can be identified after submission. A reform-based system asks whether the assessment has been designed so that authentic student learning is visible during and after production. The second approach is more sustainable.

Table 2: Detection-Based and Design-Based Responses to AI Risk

Response type	Main purpose	Strength	Limitation
AI text detection	Estimate whether submitted text may be AI-generated	Can flag suspicious cases for review	False positives and false negatives limit evidential reliability
Remote proctoring	Monitor identity, environment and behaviour during online tests	Can deter some forms of misconduct	Raises privacy, accessibility, stress and bias concerns
Plagiarism similarity checking	Compare submissions with existing sources	Useful for copied text and citation problems	Weak for original AI-generated text
Process evidence	Show how the student produced work over time	Strengthens authorship and learning evidence	Requires planning and marking time
Oral defence	Ask student to explain choices, reasoning and learning	Verifies understanding and discourages outsourcing	Difficult to scale without sampling or group strategies
Authentic assessment	Assess application in meaningful contexts	Harder to outsource fully and more relevant to outcomes	Requires careful design and clear criteria

2.5 Assessment Reform and AI-Aware Design

Assessment reform in the age of AI begins with constructive alignment. The teacher must ask what outcome is being assessed, what level of AI use is appropriate for that outcome and what evidence

will prove student competence. If the outcome is independent recall, AI use may be prohibited and the task may need controlled conditions. If the outcome is critical evaluation of AI outputs, AI use should be required and assessed. If the outcome is

professional communication, limited AI drafting may be permitted, but students may need to justify revisions and verify accuracy.

The AI Assessment Scale proposed by Perkins, Furze, Roe and MacVaugh (2023) offers a practical way to define permitted AI use across assessment levels. Later work revises and applies the model to help teachers distinguish no-AI tasks, AI-assisted planning, AI-supported editing, AI collaboration and AI exploration. The key contribution of such scales is transparency. Students and teachers can discuss what kind of AI support is acceptable instead of relying on vague statements such as use AI responsibly.

TEQSA (2023) argues that AI should lead educators to reconsider assessment practices for a digital world. This does not mean replacing all traditional assessment. It means deciding which assessments should be secure and controlled, which should be authentic and open-resource, which should include AI use and which should be redesigned to gather stronger evidence of learning. The best assessment systems will likely use a mix of methods rather than one single solution.

2.6 Equity, Privacy and Student Support

AI-aware online assessment must include equity. Some students have paid access to advanced AI tools, better devices, stronger internet connections and more digital confidence. Others may rely on free tools, shared phones or unstable connections. If AI use is allowed without considering access, assessment may reward resource advantage. If AI is banned but students use it secretly because they lack support, integrity problems may deepen. Institutions should therefore provide equitable guidance, access where possible and alternatives where necessary.

Privacy is another issue. Students may paste personal data, unpublished research, client information or institutional content into external AI systems without understanding data risks. Teachers may also upload student work into third-party tools for detection or feedback without consent or governance. UNESCO (2023) emphasises data privacy and human-centred regulation in generative AI education policy. Institutions need clear rules about what data may

be entered into AI systems and how student submissions are protected.

Student support is essential because academic integrity cannot be assumed. Students need instruction on citation, paraphrasing, collaboration, AI acknowledgement, verification of AI output, bias, hallucination, data protection and discipline-specific standards. A student who uses AI to generate false references may not fully understand the epistemic risk of fabricated sources. A student who submits AI-edited language may not know how to acknowledge assistance. Academic integrity education should therefore be embedded inside courses, not delivered only as a generic policy notice.

2.7 Research Gap and Conceptual Direction

The recent literature provides strong discussion of generative AI, academic integrity, assessment reform and institutional policy. However, there remains a practical gap between broad warnings and course-level implementation. Teachers often know that AI has changed assessment, but they need usable procedures for redesigning tasks, defining AI-use levels, collecting process evidence and applying fair judgement. Institutions also need a framework that connects academic integrity with learning outcomes, not only misconduct reporting.

This paper addresses that gap by synthesising the literature into a classroom and institutional framework for AI-aware online assessment. The conceptual position is that academic integrity should be protected through assessment validity, transparency, education and proportional governance. AI misuse should be addressed, but the deeper goal is to produce assessment systems where student competence remains visible, credible and fair.

3. Research Methodology

3.1 Research Design

This paper uses an integrative literature review design. An integrative review is appropriate when a topic includes theoretical, empirical, ethical, policy and practice-based literature. Online assessment and academic integrity in the age of AI tools is such a topic because it involves assessment

theory, digital education, student behaviour, institutional regulation, privacy, equity and technological change.

The review is qualitative and interpretive. It does not claim to be a systematic review in the PRISMA sense and does not calculate statistical effect sizes. Instead, it synthesises recent literature to identify recurring themes, tensions, risks and practical responses. Sources from 2022 to 2026 were prioritised because generative AI in education has changed rapidly since late 2022. Foundational sources were included where necessary for assessment validity, academic integrity and assessment security.

3.2 Search Strategy and Sources

Sources were identified through academic databases, publisher websites, official education agencies, open-access repositories and policy reports. Search terms included online assessment, digital assessment, academic integrity, generative AI, AI tools in education, ChatGPT and assessment, AI detection, remote proctoring, assessment validity, authentic assessment, AI Assessment Scale, academic misconduct and assessment reform. Sources were selected from peer-reviewed articles, scholarly books, official guidance documents and reputable quality assurance bodies.

Table 3: Inclusion and Exclusion Criteria

Criterion	Included	Excluded
Date	Mainly 2022-2026 sources, with older foundational assessment and integrity work	Older sources not needed for conceptual grounding
Relevance	Online assessment, AI tools, academic integrity, assessment validity, assessment reform and policy	General technology articles with no assessment or integrity connection
Source type	Peer-reviewed research, academic books, official reports, quality assurance guidance and reputable open-access papers	Blogs, promotional content and unsupported opinion pieces
Education level	School, college, higher education and professional learning, with emphasis on higher education	Workplace AI documents with no transferable education relevance
Language	English-language sources and official English translations	Sources not available in reliable English form

3.3 Data Extraction and Thematic Analysis

The selected literature was read for concepts related to AI-enabled misconduct, assessment validity, online assessment risks, student learning, equity, privacy, detection limitations and institutional governance. Notes were grouped into initial categories: assessment design, student conduct, AI policy, verification strategies, technology risks, fairness concerns and support mechanisms.

These categories were refined into themes through comparison across sources. For example, literature

warning against AI-detection reliance was grouped with remote proctoring concerns under the broader theme of limits of surveillance and detection. Literature on authentic assessment, process evidence and oral defence was grouped under assessment redesign. Policy documents from UNESCO, QAA and TEQSA were grouped under governance and capacity-building.

3.4 Trustworthiness, Ethics and Limitations

Trustworthiness was strengthened by using recent sources from diverse domains, including higher

education policy, academic integrity research, AI assessment frameworks, digital assessment literature and official guidance. The synthesis gives attention to both benefits and risks of AI rather than treating AI only as a cheating technology. It also recognises that online assessment can be made stronger through design rather than assuming that all online assessment is inherently weak.

Since the paper uses published literature and does not collect data from human participants, formal ethical approval is not required. Ethical care was taken to avoid overstating what detection tools, policy statements or single studies can prove. The main limitation is that the paper does not include primary data from students, teachers or institutions. Recommendations should therefore be adapted to local context, discipline, class size, regulation and available resources.

4. Data Analysis and Findings

4.1 Theme One: AI Turns Assessment Validity into the Central Question

The first finding is that AI tools shift the academic integrity debate from plagiarism alone to assessment validity. In conventional plagiarism cases, the concern is often whether text was copied without acknowledgement. With generative AI, the text may be new and non-matching, yet still not represent the student's own learning. The question becomes whether the assessment evidence is valid. Does the submitted work show the student's knowledge, reasoning and skill, or does it show the output of a tool?

This finding matters because many academic integrity systems are built around detecting copied text. AI-generated work can weaken that model. A low similarity score no longer guarantees authenticity. Teachers must therefore identify what form of evidence is needed for each outcome. If a course outcome requires independent critical analysis, the assessment must include evidence of how analysis was developed. If the outcome requires professional AI use, the assessment must judge the student's prompt strategy, verification, ethical decision making and final accountability.

4.2 Theme Two: AI-Enabled Misconduct Is Easier, Faster and More Difficult to Define

The second finding is that AI-enabled misconduct is not limited to complete ghostwriting. It includes unauthorised idea generation, hidden drafting, fabricated citations, unacknowledged paraphrasing, AI-generated code, automated problem solving, image generation, data fabrication and inappropriate translation. Some cases are deliberate. Others occur because students misunderstand rules or because course guidance is vague.

AI tools reduce the time and effort required to produce plausible submissions. They also reduce the visibility of misconduct because the output may not be copied from a source. However, AI use is not automatically misconduct. The same tool may be prohibited in one task and required in another. This makes clear task-level instructions essential. Students need to know whether AI use is banned, allowed for planning only, allowed for editing, required for critique or permitted with full acknowledgement.

4.3 Theme Three: Detection and Surveillance Are Insufficient as Core Strategy

The third finding is that detection and surveillance are insufficient as the main academic integrity strategy. AI-detection scores are probabilistic and can be contested. Remote proctoring may deter some misconduct but cannot solve vulnerabilities in take-home writing, project work or long-form assignments. Both approaches can create privacy, fairness and trust problems if used without clear governance.

This does not mean institutions should abandon all technology-based integrity tools. Similarity checking, identity verification and secure testing platforms can still have a role. The finding is that such tools should be secondary to assessment design and academic integrity education. A strong system uses technology proportionately, documents decision making and avoids treating tool outputs as automatic evidence of guilt.

4.4 Theme Four: Authentic and Process-Based Assessment Strengthens Evidence

The fourth finding is that online assessment becomes more defensible when it includes authentic and process-based evidence. Authentic assessment asks students to apply learning to realistic problems, professional scenarios, local cases or personal data generated during the course. Process evidence shows the development of work through drafts, notes, annotations, search logs, version history, supervisor comments, peer feedback and reflective explanation.

AI can still assist some authentic tasks, but full outsourcing becomes more difficult when students must connect work to local context, explain decisions orally, show development over time and respond to feedback. Process evidence also supports learning because it makes assessment less dependent on one final product. It helps teachers identify misunderstanding before final submission and gives students opportunities to improve.

4.5 Theme Five: Transparent AI-Use Policies Reduce Confusion

The fifth finding is that academic integrity improves when AI-use rules are transparent at the task level. Institution-wide policy is necessary, but it is usually too broad to answer the student's immediate question: Can I use AI for this assignment? Each assessment should specify permitted tools, permitted stages of use, acknowledgement requirements, prohibited uses and consequences of misuse. A generic statement that students should not cheat is no longer enough.

The AI Assessment Scale and similar frameworks help by creating levels of AI use. A teacher can state that an assignment is no-AI, AI-assisted planning, AI-assisted editing, AI-collaborative or AI-critical. The advantage is that students see AI use as part of assessment design rather than a hidden advantage. Transparency also protects staff because allegations can be judged against published rules.

4.6 Theme Six: Academic Integrity Education Must Include AI Literacy

The sixth finding is that academic integrity education must expand to include AI literacy. Students need to understand that AI systems can hallucinate sources, produce biased outputs, invent data, mishandle privacy, provide shallow reasoning and generate text that sounds confident but is inaccurate. They also need to learn how to acknowledge AI assistance, verify claims, keep records of prompts and remain responsible for final submissions.

AI literacy should be taught within disciplines. A business student, engineering student, teacher education student and nursing student will face different AI-use decisions. Discipline-specific instruction helps students understand professional accountability. For example, AI-generated advice in healthcare, legal or engineering contexts may carry high risk if unverified. In humanities and social sciences, the central issue may be argument, voice, evidence and interpretation.

4.7 Theme Seven: Institutional Governance Determines Sustainability

The seventh finding is that individual teachers cannot solve AI-integrity problems alone. Institutions need shared policy, staff development, assessment review, student training, data privacy rules, investigation procedures and quality assurance. Without institutional coordination, students receive inconsistent messages and teachers carry unsustainable redesign workload.

Effective governance should not impose one rigid assessment model. Disciplines differ. Mathematics, design, language learning, clinical education, programming and teacher education each require different evidence. Institutional policy should provide principles, templates and support while allowing course teams to select appropriate AI-use levels and verification methods. Governance should also include regular review because AI tools are evolving rapidly.

Table 4: Summary of Findings

Finding	Implication for online assessment
AI makes validity central	Assessment must show the student's actual learning, not only a polished product.
AI misconduct is diverse	Policies must cover drafting, editing, coding, translation, citations, images and data.
Detection is insufficient	Tool outputs should support review but not replace human judgement and due process.
Process evidence strengthens integrity	Drafts, logs, version history, viva and reflection should be built into high-risk tasks.
Transparency reduces confusion	Each assessment should state the permitted level of AI use and acknowledgement rules.
AI literacy is part of integrity	Students must learn verification, privacy, bias awareness and responsible acknowledgement.
Governance sustains practice	Institutions need coordinated policy, training, assessment review and privacy safeguards.

5. Discussion

The findings support the central argument that online assessment in the age of AI tools should be redesigned rather than merely policed. AI has exposed weaknesses that already existed in many assessment systems: overuse of generic essays, reliance on final products, unclear learning outcomes, weak feedback cycles and inconsistent academic integrity education. Generative AI did not create all these problems, but it made them more visible and more urgent.

The first major discussion point is that academic integrity and assessment validity must be connected. If a task is easy to outsource and the final product is the only evidence, the integrity risk is high. If a task requires local application, staged development, feedback response and oral explanation, the evidence is stronger. This does not eliminate misconduct, but it changes the risk profile. It also improves learning because students engage with process rather than only submission. The second point is that the role of AI should be determined by the learning outcome. A blanket ban may be justified in some early-stage or controlled assessments where independent performance is necessary. However, a blanket ban across all learning may be unrealistic and may fail to prepare students for professional practice. Conversely, unrestricted AI use can weaken learning if students do not develop foundational

knowledge and critical judgement. The appropriate policy is outcome-dependent.

The third point is that detection must be handled carefully. AI-detection results can prompt questions, but they should not be treated as final proof. Institutions need fair investigation procedures that consider evidence such as drafts, version history, oral explanation, writing history and student testimony. Students should also have access to appeal and support. A system that wrongly accuses students can damage trust and create inequitable harm.

The fourth point is that online assessment should make better use of interactivity. Oral defences, short interviews, live problem explanation, recorded demonstrations and feedback conferences can verify learning in ways that written products alone cannot. These methods can be scaled through sampling, group vivas, short viva windows, targeted checks for high-risk tasks and integration into tutorials. They are not replacements for all assessment, but they are useful verification tools.

The fifth point is that staff workload must be recognised. Assessment redesign, process checking, feedback and oral verification require time. Institutions cannot demand AI-resilient assessment while maintaining the same workload assumptions. Sustainable implementation requires templates, shared rubrics, moderation,

staff training, workload recognition and administrative support.

The sixth point is that AI literacy should be taught as an academic skill. Students should learn how to use AI to support learning without surrendering judgement. This includes checking sources, testing

claims, disclosing assistance, protecting data, identifying bias and explaining how AI influenced the work. In this sense, academic integrity in the AI age is not only about preventing misconduct. It is about forming responsible learners who can work ethically with powerful tools.

Table 5: AI-Aware Assessment Decision Matrix

Assessment purpose	Suggested AI-use level	Recommended evidence
Foundational recall or core procedure	No AI or controlled AI-free conditions	Timed test, in-class task, oral check or supervised problem solving
Writing development	AI allowed for brainstorming or language editing with declaration	Drafts, comments, AI-use log, final reflection and source verification
Critical evaluation	AI may be used as an object of critique	Annotated AI output, student critique, verified references and oral explanation
Professional problem solving	AI collaboration permitted within limits	Decision rationale, tool limitations, ethical review and final accountability statement
Creative or design work	AI may support ideation but not replace design judgement	Process portfolio, design iterations, prompt record and presentation defence
Research project	AI allowed for limited support if approved	Research log, supervisor milestones, data audit, citation check and viva voce

6. Recommendations

6.1 Recommendations for Teachers

- State the AI-use level for every online assessment. Do not rely only on a general institutional policy.
- Align AI permissions with learning outcomes. Prohibit AI where independent performance is required and permit it where ethical AI use is part of the outcome.
- Use process evidence for high-risk tasks. Require drafts, outlines, prompt logs, version history, annotated sources or reflection.
- Add short oral verification where appropriate. Ask students to explain choices, defend evidence and reflect on learning.
- Design authentic tasks that require local data, case application, personal reflection, field

observation, professional judgement or discipline-specific decision making.

- Teach students how to acknowledge AI assistance. Provide model declarations and examples of acceptable and unacceptable use.
- Avoid using AI-detection scores as the only basis for misconduct allegations. Combine evidence and follow institutional due process.
- Give feedback during the process, not only after final submission. This reduces outsourcing incentives and improves learning.

6.2 Recommendations for Institutions

- Develop an institution-wide AI assessment policy that distinguishes acceptable support, prohibited substitution and required disclosure.

- Create assessment redesign support for departments, including templates, rubrics, AI-use statements and examples by discipline.
- Provide staff development on AI capabilities, prompt literacy, assessment validity, detection limits, privacy and academic integrity procedures.
- Create student AI literacy modules that are embedded in courses and supported by the library, writing centre or learning support unit.
- Review high-risk assessment types such as generic take-home essays, unsupervised online exams and repeated tasks reused across semesters.
- Protect student data by defining whether staff and students may enter submissions, personal information or institutional materials into external AI tools.
- Recognise workload for assessment redesign, moderation, process checking and oral verification.
- Monitor misconduct data, student feedback and assessment outcomes to update policy continuously.

6.3 Recommendations for Policymakers and Quality Assurance Bodies

- Assess institutional readiness for AI-aware online assessment, not only the existence of written academic integrity policy.

- Encourage assessment reform that protects qualification credibility while preparing students for ethical AI use in employment and civic life.
- Support professional development at scale for teachers and academic leaders.
- Require transparency in the use of proctoring, detection and AI-supported marking technologies.
- Promote equity by requiring institutions to consider digital access, disability support, language needs and privacy rights.
- Encourage sector-level sharing of effective assessment designs and integrity case studies.

6.4 Proposed Framework: VALID-AI for Online Assessment Integrity

Based on the synthesis, this paper proposes the VALID-AI framework for online assessment integrity: Verify outcomes, Align AI-use rules, Layer evidence, Integrate integrity education, Design authentic tasks and Apply institutional governance. The framework treats AI-aware assessment as a repeated design and review cycle rather than a one-time policy response.

Table 6: VALID-AI Framework

Element	Meaning	Practical action
V - Verify outcomes	Confirm what students must personally demonstrate	Identify whether the outcome requires independent performance, AI-supported work or AI critique.
A - Align AI-use rules	Match AI permissions to the outcome	Publish task-level rules, examples and declaration requirements.
L - Layer evidence	Use more than one form of proof	Combine product, process, reflection, version history, oral checks and feedback response.
I - Integrate integrity education	Teach ethical and critical AI use	Provide AI literacy, citation guidance, privacy training and discipline-specific examples.
D - Design authentic tasks	Make tasks meaningful and harder to outsource	Use local cases, applied problems, portfolios, practical demonstrations and professional scenarios.

Element	Meaning	Practical action
AI - Apply institutional governance	Support consistency, fairness and review	Use policy, staff training, data protection, moderation and continuous improvement.

7. Conclusion

This paper examined online assessment and academic integrity issues in the age of AI tools. The analysis shows that AI has changed the conditions of assessment by weakening the assumed connection between final submitted product and student competence. The core issue is not only cheating. It is the validity and credibility of assessment evidence.

The literature indicates that generative AI creates risks of ghostwriting, unauthorised collaboration, fabricated sources, code generation, hidden editing and data manipulation. It also creates legitimate opportunities for feedback, accessibility, brainstorming, language support and professional skill development. Therefore, the educational response must be balanced. Prohibition may be necessary in some tasks, but broad prohibition is not sufficient. Unrestricted permission is also unsafe. The appropriate level of AI use depends on learning outcomes and assessment purpose.

The paper found that detection and surveillance have limited value if used as the primary response. AI detection is uncertain, and remote proctoring can raise privacy and equity concerns. More sustainable integrity protection comes from assessment design: authentic tasks, process evidence, oral verification, transparent AI-use rules, student declarations, academic integrity education and institutional governance.

The central conclusion is that online assessment should be redesigned for an AI-rich world. Teachers should specify AI-use rules at the assessment level, collect layered evidence and teach students how to use AI ethically. Institutions should provide policy, workload support, assessment review and data protection. Policymakers should evaluate whether assessment systems produce credible evidence of learning while preparing students for responsible AI use. When these conditions are met, online assessment can remain valid, fair and educationally meaningful in the age of AI tools.

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