

Assessment and examination in the age of AI

Guide 1

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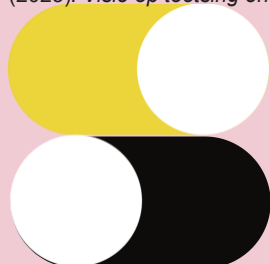
Guide 1

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1. Introduction

The rise of generative artificial intelligence (hereinafter AI) – which includes tools like ChatGPT, Gemini or DALL-E – is shaking up the field of education. Whereas previously a written final product (essay, design, report) or a traditional exam was sufficient to assess students, it is now often unclear to what extent AI contributed to that result; moreover, recent studies show that approximately 80% of students use AI tools during their studies (Ma, 2025). This raises fundamental questions about the authenticity, validity and fairness of assessment and examination. As outlined in the national vision on AI-aware assessment and examination in vocational education, higher professional education and research-oriented education (in the Netherlands), it is essential to review current teaching and assessment practices in light of the influence of AI.

It is not only the authenticity but also the validity, reliability and inclusivity of assessments that come under pressure as the use of AI becomes more widespread (Bearman et al., 2024; Bakker et al., 2024). At the same time, society demands AI-literate graduates – professionals who can use AI in a responsible, critical and ethical manner in their field of expertise. AI literacy has become a critical competence, with students expected not only to develop technical skills but also critical thinking and ethical awareness (Promma et al., 2025; Tsai et al., 2023). They must learn when and how to use AI, learn to critically evaluate output and how to communicate with AI tools. Structurally embedding AI literacy throughout the institution's curriculum and assessment policy is essential in guiding students through the process of critical, ethical and effective use of AI tools (Ng et al., 2021; Shi et al., 2025; Tsai et al., 2023).

AI should not completely take over students' learning processes or encourage dependence on it (Acosta-Enriquez et al., 2025). It is and should remain a technological tool that can be used to optimise learning processes. Wherever learning takes place, be it in AI-driven learning environments or beyond, educational quality and assessment integrity must be preserved. For assessment and examination, this means valuing not only objective, well-founded decisions but also the guidance and evaluation of learning processes in relation to the intended learning outcomes (Cukurova, 2025). AI integration is being fleshed out in various ways in the different education sectors in the Netherlands. In vocational education, the focus is mainly on striking a balance between authentic vocational preparation and AI in practice (Willemse & Van der Neut, 2020); in higher professional education it is on mastering professional competencies and AI integration and in research-oriented education, the focus is mainly on maintaining academic integrity and research skills.

Purpose of this guide

The purpose of this guide, which is based on the Dutch *Vision on assessment, examination and AI*, is to support institutions in developing, integrating and implementing effective strategies for meaningful and ethical integration of AI into teaching and assessment practices. Successful AI integration requires a systematic approach. In this rapidly changing technological landscape, institutions will sometimes have to make radical changes to protect the quality and integrity of their education. Moreover, they will need to involve all their staff in this process so that they, too, feel sufficiently competent and confident to respond to these rapid technological developments (Masry Herzallah & Makaldy, 2025). This guide provides specific guidelines for this purpose.

We base our approach on evidence-based insights and practices that can be applied across the sector. This strategic approach to achieving AI-aware teaching and assessment practices focuses on *three dimensions: process, people and educational practice*.

- **The process** concerns policy and organisation: measures such as strategic planning at institutional level, risk management, supervision & accountability and continuous evaluation and adjustment of policy.
- **The people** are all the stakeholders involved: teaching, support and administrative staff; students (beginning and advanced) and external partners such as accreditation bodies, employers and other stakeholders. This group must be included in and supported during the changes.
- **Educational practice** is about the organisation of education and assessment: teaching methods, learning methods and assessment methods. This concerns adjustments to assessment methods, learning activities and digital tools so that they fit into an AI-rich context without compromising validity. Evidence-based strategies can be applied more effectively with AI support (Mollick & Mollick, 2023).

Process	People	Educational Practice
Strategies & Action Plan	Students	Assessment practice
Risk assessment	Staff support	System changes
Working groups	Professional field	Communication strategy

These three dimensions are dealt with systematically in the following chapters. For each component, we discuss relevant aspects and points for attention and provide, in checklists, concrete short-term actions (< 12 months) and medium to long term actions (1–3 years).

2. Process

The procedural side of AI integration in assessment encompasses governance, policy and quality assurance. A higher education institution or provider has various options in its administrative mechanisms to safeguard the integrity and quality of education. This includes strategic planning and action plans, risk management and control, monitoring and reporting, evaluation and structural integration, and embedding AI policy in existing systems and structures. Adequate attention to all stakeholders in the institution is also essential. Successful adoption of AI in higher education institutions depends heavily on institutional readiness – the extent to which staff feel they are digitally competent and able to deal with these changes (Masry Herzallah & Makaldy, 2025). By implementing these mechanisms effectively, it is possible to ensure that students demonstrably achieve the learning outcomes required for their diploma or degree. This guarantees high quality in terms of content as well as process, and ensures that any risks of quality loss are identified and addressed in a timely manner. Below, we deal with the following topics relevant to the process: drafting an AI strategy and action plan, carrying out risk assessments and setting up working groups for broadly supported policy.

2.1 Strategy and action plan

Safeguarding integrity and educational quality requires an institution-wide approach to processes, people and practices. This approach is part of a wider strategy that encompasses all the education provider's activities. An institution-level AI strategy is essential to provide direction on how the institution intends to use AI in teaching and assessment. Decision-makers at the highest level must remain well informed about the opportunities and effects of AI so that they can make evidence-based choices and approve targeted actions. An effective action plan helps the educational institution determine where its approach to education, assessment and examinations needs to be updated, reviewed or adapted. It also outlines long-term goals and ambitions for AI integration in education.

A number of key features are pivotal to successful implementation of the strategy, starting with a broadly supported strategy and action plan. This must be underpinned by clear actions, realistic timelines, a transparent allocation of responsibilities at different levels and an effective progress monitoring process. The action plan serves as a document where proposed changes are recorded, responsibilities are assigned and progress is measured against established timelines.

The strategic objectives and approach are unique for every educational institution. The action plan should therefore be based on the institution's overarching objectives.

Key considerations

Every institution must take at least the following steps:

1. **Understand and determine the institution's risk appetite and tolerance:** Understanding the institution's risk tolerance. What risks related to AI is the institution willing to accept – and where does it draw the line? Institutions with a clearly defined risk tolerance are more effective in navigating the tensions between innovation and quality assurance (Zaphir et al., 2024; Jung, 2025).
2. **Develop a strategic approach:** To identify and manage the opportunities and risks of AI for their own educational offerings, it is important that institutions develop an organisation-wide strategic approach. This allows them to manage AI risks while also seizing opportunities for their educational offerings (Bergdahl & Sjöberg, 2025).
3. **Draw up an action plan:** To achieve the strategic objectives, an institution-wide action plan with measurable, achievable tasks should be drawn up. Include both short-term quick wins and long-term ambitions in this action plan. It is crucial to take account of the acceptance of AI by students and teaching staff, with aspects such as the digital divide and accessibility being key considerations (Zhang et al., 2025).
4. **Integrate AI risk mitigation strategies:** Risks can be mitigated by embedding strategies into existing governance, quality assurance, quality control frameworks and strategic planning processes. This should align with the frameworks used by regulatory authorities. AI policy should not stand alone but be integrated into what already works well (Jung, 2025).
5. **Establish flexible processes:** Ensure that flexible processes are established institution-wide so that the institution can respond quickly to new or changing technologies. Processes should be configured so that the institution can adapt rapidly to new or changing technologies; this is because AI is an ever-evolving field (Perkins et al., 2024).

A number of key features are pivotal to successful implementation of the strategy, starting with a broadly supported strategy and action plan. This must be underpinned by clear actions, realistic timelines, a transparent allocation of responsibilities at different levels and an effective progress monitoring process. The action plan serves as a document in which proposed changes are recorded, responsibilities assigned and progress measured against defined timelines. An institution's approach to developing its AI strategy and action plan depends heavily on its specific context. There is therefore no single approach that is suitable for every institution.

Checklist 1: Strategy and action plan

Short term (< 12 months):

- (a) Set up a steering group or AI taskforce responsible for developing the AI strategy, and align this with the broader objectives and principles of the institution.
- (b) Have the institution's executive board review and approve the AI action plan.
- (c) Determine the institution's risk appetite with regard to AI (which risks are acceptable and which are not).
- (d) Formulate an action plan that includes strategies for mitigating AI risks within existing governance structures, quality frameworks and planning processes.
- (e) Draft provisional guidelines for AI use in assessment so as to provide immediate clarity while the full policy is being developed. Use evidence-based methods that remain flexible across different assessment contexts.
- (f) Make clear agreements about supervision at the appropriate governance level.
- (g) Collect current case studies and best practices of AI integration in national and international education for learning purposes. Adjust policies, procedures and guidelines where necessary.
- (h) Make the institution's AI strategy and resulting action plan accessible to all staff and students.
- (i) Examine the perceived competencies and attitudes of teaching staff regarding AI so that targeted professional development activities can be organised.

Medium term (1–3 years):

- (j) Incorporate strategies for mitigating AI risks into existing governance structures, quality frameworks and planning processes, and embed them in annual cycles and audits, for example.
- (k) Regularly discuss and evaluate progress of the AI action plan with the board and other stakeholders to ensure that everyone understands what is happening, who is monitoring and steering the process and that broad support is maintained.
- (l) Periodically review, evaluate and document the effectiveness of the institution's AI strategy: Are we achieving our goals? Do we need to make adjustments?
- (m) Track and benchmark progress against comparable institutions to facilitate collaborative learning.
- (n) Consider institution-wide licences for approved AI tools so that all students and staff have equal access to reliable AI.
- (o) Implement systematic quality control mechanisms for AI-assisted assessment, including regular audits of AI output and decisions.

2.2 Risk assessment

Given the speed of technological developments, strategies may quickly become outdated. It is therefore important to evaluate and revise strategies regularly so that we can continue to adapt to the ongoing evolution of AI and other emerging technologies. Attention must also be given to the risk of excessive reliance on AI by students (Acosta-Enriquez et al., 2025). Each institution must perform its own AI risk analysis, tailored to its context and risk tolerance. How an institution does this depends on its risk appetite and existing risk management processes.

Because AI technologies are applicable across many domains, institutions must carefully evaluate the integrity of their educational approach. It is not necessary to address everything at once – in phased implementation of measures, institutions usually begin by addressing the areas with the highest risks. Systematic risk assessments for different AI applications are essential order to safeguard quality while encouraging innovation (Zaphir et al., 2024). This makes it necessary to keep abreast of new developments in this rapidly changing technology as well as the associated risks.

The integration of AI technologies must also take equity and diversity into account. This is vital to support diverse groups of students effectively in their learning process. Access to AI tools varies among students, for example due to socio-economic factors (Zhang et al., 2025). Moreover, it is important to bear in mind that if students are allowed or expected to use AI in their studies, this may be disadvantageous for those who cannot afford one or more AI subscriptions. Internet access does not automatically mean that all students have equal access to AI applications. There are differences between paid and unpaid subscriptions, for instance. Providing an institutional licence may help, but it will not entirely eliminate the risk of unequal access. The approach to risk assessment must always be tailored to the specific context of the educational institution, and there is no single solution suitable for every institution.

Key considerations

- **Learning environment:** To address the challenges AI poses for assessments and examinations (for each institution), it is vital to ensure that risk assessment takes various aspects into consideration. First of all, the form and configuration of the learning environment must be considered; is the education face-to-face, hybrid or online? Certain AI risks are more likely to arise in online environments (unauthorised use during online examinations, for example).

- **External partners:** Clear arrangements must also be in place with third parties involved in education. These third-parties must be familiar with the institution's AI guidelines so they understand and comply with the institution's strategies for AI risk mitigation. Make explicit agreements with external parties involved in education (e.g. internship companies, exam suppliers and providers of assessment software).
- **Consistency:** It is essential to maintain consistency across all educational locations (i.e. faculties, programmes and schools). Each location must follow the same quality standards and approach and observe the same rules to prevent inequality. This may require a review of existing governance structures – e.g. evaluation, audit or accreditation processes – to ensure they remain suitable for new challenges created by AI.
- **Continuous monitoring and evaluation:** Risk management approaches should be evaluated regularly and adjusted or renewed where necessary to address AI risks effectively. Integrating AI into the regular quality cycle ensures that potential risks from new developments are identified more rapidly. Include AI aspects in programme evaluations, curriculum reviews and accreditations, for example. Adjust risk management as needed based on new developments.
- **Workplace learning:** Make sure to incorporate integrated learning into practical assignments and workplace learning. Existing resources and assessments must be reviewed and updated to ensure they meet the expectations of the professional field/labour market and contribute to effective preparation for workplace learning. Consider whether practical assignments and internships are exposed to different risks due to AI (e.g. students using AI for practical assignments). Ensure that the assessment criteria are also clear for workplace learning and, where necessary, adapted to AI developments.
- **Equity and diversity:** If students must or may use AI for their studies, it is important not to disadvantage those without access to AI or the means to pay for it. Not every student can afford expensive AI subscriptions; internet access alone does not guarantee equal access to all AI tools. Institution-wide licences or facilities can partly address this, but never entirely. Unequal access leading to unequal opportunities is an obvious risk, and so institutions must actively monitor and mitigate this risk (e.g. by offering alternatives or subsidies for students with fewer resources).
- **Privacy and data ethics:** Risk assessment must explicitly consider privacy aspects in AI use. Users often unknowingly share personal information with AI systems, which necessitates specific training to enhance privacy awareness (Markus et al. 2025).

Checklist 2: Risk assessment**Short term (< 12 months):**

- (a) Perform a rapid risk analysis of all educational offerings – modules, units and subjects (e.g. essay assessments, take-home examinations, written professional products). Identify which components are most vulnerable; a number of validated frameworks are available for this purpose.
- (b) Rank risk mitigation activities and prioritise assessment reforms for educational offerings with the highest risk.
- (c) Identify which assessment methods are most vulnerable to inappropriate use of AI. Which programmes, target groups and assessment components should be given extra protection or be redesigned first?
- (d) Identify potential issues that assessment redesign could create for equity, diversity or inclusion by identifying where AI affects the resilience of current learning objectives, and/or undermines achievement or demonstration of learning outcomes (e.g. essay assessments, take-home assessments).
- (e) Resolve possible issues and check whether existing examination regulations and fraud protocols include guidelines or provisions about AI. If not, add these in the short term to establish a foundation.
- (f) Analyse privacy risks for different AI tools and develop guidelines for safe data use (Markus et al., 2025).

Medium term (1–3 years):

- (g) Continue transforming the institution's educational offerings so as to integrate AI into teaching, learning and assessment practices by putting it on the agenda and discussing it at different organisational levels.
- (h) Implement changes in risk mitigation strategies that need to be reformed. Introduce periodical and ongoing checkpoints (e.g. annually) to assess the effectiveness of implemented risk mitigation strategies and adjust for new AI developments.
- (i) Ensure that all quality assurance operations (accreditations, inspections, audits) explicitly examine AI impact mitigation, and develop guidelines for this in collaboration with examination boards.
- (j) Collaborate nationally and internationally: Compare institutional initiatives and progress with those of similar providers. Share findings and solutions with other institutions and professional bodies to ensure sector-wide preparedness.

- (k) Monitor the wider industry: track the emergence of new AI applications in professional practice and anticipate which new risks this entails or changes are required in education.
- (l) Arrange an institutional licence/subscription for approved and vetted AI tools. Actively monitor usage and accessibility for different student groups to prevent inequity.

2.3 Working groups

Education providers use various names for their (internal) advisory groups, such as advisory committees, working groups and taskforces. In this guide, we use the umbrella term *working groups*.

Establishing effective working groups, with appropriate expertise and mandates, is a powerful means of shaping AI strategy, action plan, policy and implementation successfully. Successful AI integration requires a multi-stakeholder approach, integrating diverse perspectives from technical experts to end users (Annamalai et al., 2025). It is important that this approach is developed throughout an institution in cooperation with staff, students, industry and working groups – and that the right expertise is utilised whenever necessary.

Key considerations

- **Clarity about purpose and role:** Education providers must clarify the role and purpose of each group in their institution, and whether they have a formal advisory function. Formal working groups advise policymakers on the institution's strategy. They ensure that the curriculum meets the needs of students, the labour market and various disciplines, and that the quality of qualifications is maintained. A formal working group forms part of the governance system but does not have the same powers as an executive board, as the working group only advises and does not make decisions. Informal working groups offer staff the opportunity to share knowledge and experience, exchange teaching and assessment methods and encourage collaboration. These groups do not directly influence decision-making or institutional strategy, but are a valuable way to foster a culture of professional and academic integrity, innovation and support. In practice, this means: Define the purpose, composition and powers of each working group. Is it a formal advisory group reporting directly to the board, or an informal community of practice, learning network or innovation club? Formal working groups advise policymakers and safeguard compliance with quality and accreditation requirements, but do not make decisions themselves. Informal working groups provide a platform for knowledge sharing and bottom-up innovation without direct decision-making. Both are valuable.

- **Inclusive composition:** Involve internal staff (teaching staff, students, support staff) as well as external parties (professional field, experts) in developing the AI strategy and action plan, for example in working groups. This results in multidisciplinary working groups and a widely supported, well-founded institutional perspective on AI. These multidisciplinary working groups are also more effective at identifying practical challenges and solutions for AI integration, as research demonstrates (Cui, 2025). By involving students and external experts in working groups, a more comprehensive understanding emerges of both the risks and opportunities of AI in different contexts.
- **Feedback from the professional field:** Not only developments in teaching and assessment practices must be considered, but also AI applications in the professional field. Insight into this changing landscape is essential to ensure that educational offerings and desired learning outcomes prepare students for the complex and rapidly evolving knowledge and skills needed in a world where AI is increasingly prevalent. Finally, it is important to ensure that policymakers regularly receive advice on changes in the technological landscape so they can make informed decisions based on a strong understanding of the impact but also opportunities of AI for their educational activities and general policy. In other words, use working groups to gather feedback from regulators, the professional field and external stakeholders such as exam providers. This way, the curriculum can remain attuned to the demands graduates will soon face in practice.
- **Component of governance:** By establishing working groups that influence the development or revision of an institutional AI strategy, education providers can create a well-substantiated, institution-wide perspective on the use of AI. To work effectively with AI, it is crucial to understand its impact across different layers of the institution. This helps to identify the required short-, medium- and long-term actions that can support the use of AI in the institution. Consulting stakeholders ensures that the action plan is well aligned with the context as well as the intended objectives and outcomes – and that it is achievable in practice. Be sure to give formal working groups a place in governance structures. This way, consultation becomes a structural part of policy.
- **Culture and knowledge sharing:** Use informal working groups and/or networks to encourage an open learning culture. Let teaching staff exchange good practices and share teaching materials collaboratively. Developing feedback literacy for effective AI-assisted feedback processes is essential in the different working groups (Boud & Dawson, 2023). This fosters a culture of professional integrity and innovation.

By deploying such working groups, the institution becomes aware of the impact of AI throughout the organisation and the required short-term and long-term actions become clear. This also enhances support, as all parties involved in the institution feel heard and involved in the AI strategy.

The working groups ensure policymakers receive timely advice on technological changes so that decisions are always based on up-to-date knowledge. Feedback from the professional field – based on up-to-date occupational practice and accompanying occupational profiles – makes the strategy more current and relevant, ensuring that students develop the right skills and knowledge for their future career, professional field and/or discipline.

Checklist 3: Working groups

Short term (< 12 months):

- Identify which working groups are needed (e.g. a formal AI Advisory Committee and informal learning networks for each faculty).
- Draw up clear objectives and terms of reference for each working group.
- Establish reporting lines: determine how and how often working groups report to management or the board.
- Communicate which expertise is sought and required; invite staff to participate or provide input. Explicitly ensure student representation to guarantee the user's perspective.

Medium term (1–3 years):

- Ensure that formal working groups are continuously provided with up-to-date information (e.g. through training or conference attendance); this way, their advice remains current.
- Facilitate informal working groups in terms of time and resources (e.g. professional development hours or other facilities) to develop good ideas. Develop communities of practice around specific AI applications in assessment and ensure that experiences are systematically documented and shared (Lim et al., 2025).
- Evaluate the influence of the working groups annually: are recommendations adopted, is the composition still appropriate, have objectives been achieved or do they need adjustment? Adapt the working group's assignment where needed to stay relevant.

3. People

The degree of success of AI integration hinges on the people working in and connected to the institution: educational staff, support staff, students and external partners (regulators and accreditation bodies, the professional field, exam suppliers and all other parties involved in education and assessment).

Everyone employed by an institution contributes to its proper functioning and must collaborate to create a learning environment that is both supportive and effective. That may be as a driving force, facilitator, user or innovator of AI applications. AI adoption in higher education institutions is strongly influenced by motivation and perceived technological proficiency among these employees, with trust being especially crucial for successful implementation (Nazaretsky et al., 2025). All employees play a role in an institution's efforts to safeguard the integrity of qualifications and integrate AI meaningfully into teaching, learning and assessment activities. It is therefore crucial to involve everyone in the changes AI brings to education and assessment. Setting clear expectations and building a shared culture of responsible AI use is vital, especially since lack of AI literacy and insufficient training or professional development leads to resistance and ineffective use (Kohnke et al., 2025). Technical as well as pedagogical-didactic skills are needed for successful AI integration (López-Costa et al., 2025). Lack of information or understanding may also mean that both the risks and opportunities of AI are overlooked, which can lead to obstacles for ethical and effective engagement.

At the same time, external stakeholders (e.g. exam suppliers, accreditation bodies and professional field partners) may have different needs and expectations regarding the use of AI. These aspects must also be included in the institution's strategic approach.

Measures such as support and professional development for AI use, both for students and educational staff/support staff, should be differentiated and build on the experiences, talents and innovations of all stakeholders. This increases people's confidence in their own abilities and encourages continual improvement. It is important to provide everyone involved in the AI integration strategy with clear and current information. Institutions can undertake various actions to involve and support both internal and external partners in this, but also foster collaboration and ongoing development of this strategy.

3.1 Student support and engagement

If AI tools are well integrated in education, they can offer new ways to enhance the learning experience, make the learning environment more interactive and facilitate collaboration between students and teaching staff. In contrast, lack of adequate support negatively affects the development of critical thinking skills and AI literacy (Bognár & Khine, 2025). A negative stance towards AI or uncritical acceptance of AI both pose risks for integrity and quality of assessment.

It is therefore essential to actively involve students in the development of teaching and learning activities. Not only does this strengthen the learning environment, it also helps to safeguard the reliability of assessments. It is important to explore together how AI can help improve education and assessment (Acosta-Enriquez et al., 2025).

Key considerations

- **Clear communication:** Inform students about the institution's approach. Higher education institutions should establish clear, accessible guidelines for the ethical use of AI. Define, for each programme/subject, whether and how AI may be used in assignments or assessments. This means that the AI policy objectives must be communicated clearly and it must be easy for students to access further information on this topic.
- **Guidelines and ethical use:** Provide clear and accessible guidelines for the ethical use of AI: This way, students know precisely what is expected of them in their discipline, programme, courses and modules. Communicate expectations clearly. Students must know exactly what the requirements are with regard to using AI. For example: "In this course you may use AI for..., but not for...". Also be clear about why certain boundaries exist (fairness, learning value, etc.). Communicate the AI policy through channels that students actually see: study guides, LMS portal, onboarding programmes, etc. Ensure that students can easily find information and that the objectives and guidelines of institution-wide AI policy are clear for them (Turós et al., 2025).
- **Ensure students learn about AI:** Learning *with* AI also implies learning *about* AI. AI literacy must be a component of every programme and every curriculum. This involves not only technical skills but also an understanding of the possibilities, limitations and ethical implications of AI. Systematic thinking and intuitive problem-solving abilities are essential, as these skills mutually reinforce each other (Promma et al., 2025). Teaching staff will need to regularly engage with their students about what constitutes acceptable or appropriate AI use and why. Encourage students to get involved and provide feedback on AI in their education. They can offer valuable insights, such as how they (and their peers) already use AI tools, what challenges they face, and what support they require. By jointly exploring how AI can enhance learning and assessment, you build support and increase the reliability of assessments.

- **Ethical implications:** A shared focus on the ethical use of AI, with due attention to integrity, equity and inclusion, is essential to improve the experience for everyone in education. Such discussions – for instance on AI bias, plagiarism risks and permissible or impermissible use of tools – bring ethical frameworks to life and make them explicit. AI for educational purposes requires explicit attention to ethical design principles, with transparency about AI's limitations and potential biases being essential (Liu et al., 2025). This establishes a common understanding between student and teacher of what "responsible AI use" entails. A combined focus on integrity, equity and inclusion in AI use enhances the learning experience for all.
- **AI literacy:** It is important to give students the opportunity to develop skills in using AI tools. This can be done by regularly offering training, workshops, practice sessions or online modules on effective and ethical AI use that supports their development. Structured AI literacy programmes lead to better learning outcomes when integrated into the standard curriculum rather than offered as standalone modules (Ma, 2025). Because not every student is already proficient in using AI tools, we recommend organising opportunities for students to develop their AI skills.
- **Foster critical thinking:** Beyond acquiring digital competence in using AI, students also need to learn about AI bias and unintended discrimination. Combining practical training about tools with raising awareness (thinking critically about AI outputs and recognising hallucinations, errors or biases in outputs) is important to avoid becoming overly reliant on AI (Acosta-Enriquez et al., 2025). Ensure equity so that students have access to the appropriate AI tools they need for their learning activities. If certain AI tools are deemed essential, every student must have access to them. If necessary, take measures to provide everyone with the required software and hardware access, e.g. through licences or facilities on campus.
- **Feedback:** Higher education institutions should regularly use student feedback to update their guidelines. By gathering feedback on a regular basis, for example via surveys or panel discussions on how AI policy works in practice, they stay informed about changes in the technological landscape and students' AI use. Technology evolves rapidly, as does how students use it (Wang et al., 2025). Gather feedback, use it responsibly to keep guidelines current, and continue listening to students. This shows the institution is keeping pace with technological developments and student needs.

Checklist 4: Students**Short term (< 12 months):**

- (a) Update information for students (study guides, handbooks, guidance, LMS pages, FAQs, etc.) with clear explanations of the institution's approach to AI.
- (b) Provide new students with basic training on academic and professional integrity related to AI, for instance during induction.
Integrate the concept of trusting AI systems as a core component.
- (c) Ensure that training, educational offerings, modules or courses are available (online and face-to-face) so that students can learn how to be effective and ethical AI users. This way, both new and continuing students become aware of ethical AI use.
- (d) Consider purchasing an institution-wide licence for approved, reliable AI tools so that every student has access to the same basic facilities. For specific types of programmes, particular AI tools may be needed to prepare students optimally for professional practice.
- (e) Add targeted questions to routine student evaluations of education to gauge how AI policy and practice affect students' experience. Specifically monitor student engagement during an academic term.
- (f) Provide insight into the AI literacy levels of incoming students to provide targeted support.

Medium term (1–3 years):

- (g) Monitor completion and effectiveness of compulsory educational offerings (e.g. on AI and integrity or similar content) to continually improve them. Do these offerings improve student awareness and, consequently, whether they act in line with the guidelines?
- (h) Structurally involve students in developing AI policy and communication, for example by including student representatives in AI working groups and supporting student-led initiatives.
- (i) Periodically review (e.g. annually) student guidelines for institution-wide AI use to that ensure risks to student and staff safety (regarding privacy and intellectual property) are effectively managed and mitigated.
- (j) Keep investing in awareness actions, especially just before assessment periods (e.g. reminders on what is and is not permitted with AI), so that agreements are kept top-of-mind.
- (k) Implement monitoring systems to prevent problematic AI dependency among students and offer targeted interventions and support based on early warning signs.

3.2 Staff support and involvement

Staff vary in their knowledge about and attitudes to AI. Some are already experimenting extensively with AI while others are hesitant or unaware of it. Fear of change and lack of confidence in digital competence can be barriers (Masry Herzallah & Makaldy, 2025). Both teaching staff and support staff must be well supported so that everyone understands the opportunities AI offers and the implications for education and assessment. It pays to foster a culture of lifelong learning: if staff continuously develop their professional skills in AI, internal expertise will grow and we will be able to effectively harness the potential of AI. Naturally, this should always be within frameworks of responsible use and respect academic integrity, privacy and intellectual property rights.

Key considerations

- **Promoting a culture of continuous learning and research** Knowledge and engagement with AI and related tools can vary widely between staff, which makes it essential to ensure effective support for both teaching staff and support staff. This helps them fully understand the possibilities of AI and its implications for education and assessment (Guan et al., 2025). Using AI to improve education and learning should always be based on principles of responsible use, with clear boundaries in place. This approach preserves academic integrity, privacy and intellectual property – both for staff and students.
- **Clear information and communication** First, it is important to inform staff adequately about the institution's vision and expectations regarding AI. This means clearly communicating the goals and impact of AI policy. Teaching staff need concrete guidance and support to deliver AI-integrated education, not just technical instructions (Kohnke et al., 2025). Furthermore, any changes to existing teaching and assessment practices resulting from the vision and policy must be communicated in a timely manner. Nobody likes surprises in the educational process; timely communication about new approaches and guidelines is essential. Make it easy for teaching staff and support teams to access further information, for example through FAQs or designated contacts for questions.
- **Training and facilitating professional development** Staff should be supported in implementing the institution-wide strategy and acquiring AI knowledge and skills. This can be done by providing teaching staff with training, workshops and resources on how to use AI meaningfully in lessons and how to recognise and prevent AI-related fraud (Mollick & Mollick, 2023). Encourage staff to stay informed about AI's limitations (unreliability of AI-generated sources, algorithm bias, etc.) so that their decisions are well-considered. Make ethical AI use an integral part of professional development for teaching staff. This could be through refresher courses, lunch lectures or sharing good practices in internal communities.

AI use is relatively new but fundamentally aligns with existing principles and themes such as assessment competence and digital skills/didactics; it is best to position it this way as well.

- **Support policy implementation and ensure consistency across programmes** Ensure consistency within programmes: every teacher should convey more or less the same message about AI use to prevent students from receiving conflicting signals in programmes at the same institution (Bergdahl & Sjöberg, 2025). Provide templates or guidelines for syllabus texts on AI so that individual educators do not have to reinvent the wheel when formulating rules for their course. A central information point (e.g. an intranet page or AI hub) where all relevant documents, policies and tips are collected could be useful for this. This way, everyone has access to the latest information. It is also important to ensure consistency between different locations. This means protecting the quality of educational offerings by ensuring that AI is used responsibly at all locations, including external providers. A central information platform for AI could help staff access relevant information easily and rapidly.
- **Collaboration and knowledge-sharing** Creating opportunities for collaboration is equally important; this can be achieved by using internal and external expertise to foster a culture of innovation and continuous improvement. Developing feedback literacy is critical to these efforts (Boud & Dawson, 2023). Create opportunities for collaboration around AI innovations, encourage peer consultation on contemporary assessment practices and potential adjustments, or facilitate mutual coaching so that everyone can continue to learn. This ties in with the working groups and learning networks mentioned earlier. Consider external collaboration too: involve teaching staff in broad communities (e.g. SURF's special interest groups or network sessions) to exchange knowledge with other institutions.
- **Proper induction for new staff** is crucial so that they clearly understand their responsibilities and the expectations regarding AI use. Pay attention, from the outset, to AI integration – including the changing teaching identity and roles involved (Guan et al., 2025).
- **Recognise and reward staff efforts** by celebrating innovation and sharing successful applications of AI in teaching and assessment practices: highlight successes (e.g. a teacher who has developed an excellent AI-integrated assignment) in newsletters or sessions. This motivates others and normalises experimenting with AI in education.

Checklist 5: Staff

Short term (< 12 months):

- (a) Check what staff know about AI and how they use it. What do they see as the biggest barriers to its use? What opportunities do they identify? What are their current training needs? A short survey can provide insight into knowledge levels, concerns and training needs.
- (b) Create a central resource hub for staff where all information about AI is kept and is easily accessible. For example, an intranet page where all AI-related info, policies and tools can be found.
- (c) Update current induction processes to inform new staff about the institution's AI policy and procedures: provide them with AI guidelines and have a discussion with them about how the institution handles AI.
- (d) Communicate any institution-wide and discipline-specific policy changes to all staff members. Do this in a clear and proactive manner and explain why these changes are being implemented.
- (e) Facilitate staff participation in AI-focused training and courses on professional and academic integrity, for example by allocating time and resources for this or making training a mandatory part of professional development.
This ensures that levels of understanding and skills in AI are well aligned between staff and students. Focus on evidence-based teaching and assessment practices that can be enhanced with AI (Mollick & Mollick, 2023).
- (f) Provide access to an AI training module or other training resources to help staff become effective and ethical users of AI.
- (g) Develop feedback literacy among teaching staff as an essential prerequisite for the effective use of AI-assisted feedback with students (Boud & Dawson, 2023).

Medium term (1–3 years):

- (h) Develop AI professional development offerings tailored to specific educational programmes and staff needs in the institution.
- (i) Introduce a mentoring or buddy system: pair staff who have less experience in AI with more experienced colleagues so they can learn from each other.
Ensure attention is given to the paradigm shift from AI as a tool to AI as a collaborative partner (Guan et al., 2025).
- (j) Maintain focus on privacy and ethics, for example through mandatory modules on GDPR and AI (so that everyone understands that student data should not be entered blindly into external AI tools, for example).

- (k) Encourage interdisciplinary collaboration. For example, organise an annual internal exchange on AI use in educational practices where teaching staff share experiences and outcomes.
- (l) Monitor AI literacy development among teaching staff through Basic and Senior Teaching Qualification pathways (BKO/SKO) or Basic and Senior Examination Qualification pathways (BKE/SKE). Periodically evaluate teaching staff's skills and confidence in effective and responsible AI use in their teaching and assessment practices.
- (m) Incorporate staff feedback on AI use by adjusting or revising policies and procedures.
- (n) Structurally integrate the development of AI literacy and required competencies into educational programmes and continuing education for teaching staff, taking into account their changing role and identity in this role.

3.3 Supervisory bodies and the professional field

Higher education institutions do not operate in isolation. External regulators – such as the Accreditation Organisation of the Netherlands and Flanders (NVAO) for higher education, the education inspectorate in vocational education and training and other examination authorities – and the professional field (industry, professional associations) influence how diplomas are valued and which skills are expected of graduates. An increasing number of employers expect graduates to have AI competencies, while not all programmes explicitly address this yet (Maulana et al., 2025). With the growing integration of AI applications in various professions, it is essential that future professionals have the knowledge and skills to apply AI effectively, efficiently and ethically in their field. At the same time, supervisory and accreditation bodies may decide to adjust their requirements in the AI era. This raises different questions about quality control and scalability in accreditation processes (Jung et al., 2025). It is therefore pertinent that institutions, programme teams, assessment committees, accreditation bodies, collaborative organisations for professional and industry sectors – and students – engage in ongoing dialogue to develop a shared understanding of desirable AI use and technological developments.

Key considerations

- **Maintain dialogue** with supervisory bodies. Institutions should proactively engage with supervisory bodies and authorities to avoid problematic discrepancies between views, applications and quality regarding AI in teaching and assessment practices (Benedetto et al., 2025). Consider setting up a joint sounding board group where changes in assessment methods or learning outcomes are discussed prior to accreditation.

Alternatively, organise an advisory council to monitor the relationship between changes in assessment methods, learning outcomes and professional accreditation. Specific consultation processes can also be established or adapted. This allows institutions to explain how they integrate AI without watering down diploma requirements, ensures students develop the right skills for their future profession and allows supervisors to specify the frameworks or evidence they want to see. This avoids unexpected surprises after the fact. Coordination within sector associations, such as the council for Secondary Vocational Education and Training Schools in the Netherlands (*MBO Raad*), the Association of Universities of Applied Sciences (*Vereniging Hogescholen*, VH) and Research Universities of the Netherlands (*Universiteiten van Nederland*, UNL) is also desirable. This way, the different sectors can work towards domain-specific or sector-wide guidelines on appropriate AI use so that large, inexplicable differences between comparable programme providers do not arise.

- **Involve the professional field in curricula and assessments** The professional field can provide valuable input on which AI skills are needed in practice. For example, marketing students may need to be able to use AI tools for data analysis. Prospective programmers may need to develop specific competencies, such as debugging AI-generated code and critically evaluating AI suggestions (Manorat et al., 2025). It is therefore recommended to maintain regular consultation with employers and industry associations on the relevance of the education programme.
Where possible, adjust learning outcomes to new requirements that apply to disciplines or contexts. Some formal qualification dossiers (vocational education) or programme profiles (higher professional education/research-oriented education) require nationwide revision. This will take time.
- **Institutions must incorporate expectations** of the professional field regarding AI into their educational offerings. Clear communication about AI use in the future workplace is crucial for effective preparation (Andreou et al., 2024). Sharing insights from the professional field with students, for example via guest speakers or case studies, is useful in this regard. This allows students to understand directly how AI plays a role in their future professional practice and why certain AI-related knowledge, skills and applications are assessed in their programme. Because AI practices in the workplace evolve rapidly, it is important to include these changes in the information students receive before starting work-integrated learning activities (Benedetto et al., 2025). Provide up-to-date information for students about internships and work activities. Because of the rapid development of AI applications in the professional field, relevant information must be current in the guidance students receive at the start of their programme or internships. This could be part of an internship preparation module or career orientation.

Checklist 6: External coordination**Short term (< 12 months):**

- (a) Actively seek contact with relevant accreditation bodies and education inspectorates to discuss how the institution handles AI in assessments. Collaborate regularly with professional accreditation bodies to ensure updated competence standards are met and assessed in reviewed programmes, and check if new guidelines or standards are being developed. Check whether updated competence standards are adhered to and assessed in the reviewed programmes and anticipate accordingly.
Specifically inquire about quality control plans and mechanisms.
- (b) Consult with representatives from the professional field (and alumni) to evaluate the relevance of current education and learning outcomes for students. Discuss whether the current curriculum is still aligned with rapid AI developments in practice. Identify the AI competencies and skills employers expect and compare those with the current curriculum.
- (c) Closely monitor communication from government and supervisory bodies: are new AI requirements about to be introduced? Ensure timely compliance by the institution with expectations, requirements and legal frameworks and regulations (such as the EU AI Act).
- (d) Develop a method to identify discrepancies between educational offerings and desired or necessary AI requirements in the professional field, both now and in the future.

Medium term (1–3 years):

- (e) Support education providers and programme teams in processing AI-related accreditation requirements and quality standards. Also offer centralised advice or assistance when programmes need to be revised.
- (f) Establish an alumni feedback loop specifically for AI: ask former students, for example after one year, which AI competencies or applications have proven useful or are missing in their professional field, and use this input to adjust assessments and education.
- (g) Maintain structural collaboration with professional committees or professional associations/advisory councils so that AI skills and applications desired in the future are explicitly included in assessment programmes.

4. Educational Practice

4.1 Assessment integrity

Educational practice refers to all teaching, learning and assessment activities offered by educational providers – in collaboration with the professional field or otherwise – which may need to be adjusted due to the influence of AI. Consider, for instance, designing or redesigning assessments and assignments, updating learning objectives and implementing supportive systems to guide and document AI use. This section discusses how institutions can revise assessments to maintain validity and reliability (assessing learning quality and outcomes), what system changes may be necessary and how an effective communication strategy is part of the practical approach.

We address questions such as: How do we safeguard the integrity of assessments in the presence of AI? How do we design assessments so that AI use is an added value where desired but prevented where undesired? Although there are various strategies to safeguard academic integrity – ranging from open-book exams, providing information, prevention and AI detection tools – their effectiveness varies widely and a combined approach appears necessary (Cotton et al., 2024). A key principle here is that different assessment methods must be used in conjunction to achieve a robust assessment practice. There is no single assessment method or AI application that covers all learning objectives and simultaneously safeguards desired or required AI use and prevention of unauthorised use. A mix of approaches is needed to tackle the multifaceted challenges and deliver AI-aware assessments.

Key considerations

- **Reviewing assessment programmes and assessment methods** Assessment can serve different functions; to monitor and support student development, to evaluate the effectiveness of education and to determine the quality of student learning and outcomes. Human intervention and/or oversight is always important in the assessment process (Jung et al., 2025). Many assessment methods and products previously used as evidence of student learning can now be quickly and effectively produced by AI. It is therefore essential that institutions review and adapt their current teaching and assessment practices so that students demonstrably achieve the desired learning outcomes. The guiding principle should be to carefully consider what you really want to measure and know in terms of student outcomes and development – and how to make this visible. If AI can produce perfect output without the student mastering the material, the assessment fails its purpose.

- **No single assessment method** enables students to demonstrate they have achieved all learning outcomes or developed all relevant AI applications. Nor can any single tool guarantee the security of assessment. Institutions must therefore use a well-considered mix of multiple assessment methods to safeguard assessment integrity.
- **How to provide reliable and valid assessment and examination** throughout a student's education pathway is something institutions will have to reconsider. The objective is not to develop an *AI-resistant* but an *AI-aware* assessment programme. This means balancing assessment under supervision in controllable circumstances with assessment without supervision in less controllable environments. When determining the quality of learning and student outcomes or assessments that have significant decisions or consequences, we need to be certain about the extent to which an individual student has mastered and achieved the intended knowledge, skills and learning objectives through their own efforts. In the age of AI, this calls for AI-aware assessment so that additional measures can be taken where necessary to ensure the integrity, fairness and validity of assessments. Students must demonstrate that it is they who have achieved the learning outcomes, not a clever tool. Consider for each learning outcome whether it should be demonstrated with or without AI, or in collaboration with AI.
- **To safeguard the integrity, fairness and validity of assessments**, it is important to understand both the capabilities of current AI tools and the risks of each assessment method (Yamminah et al., 2025). Without this knowledge, it is difficult to effectively identify the assessment methods most at risk and prioritise transforming those assessment systems.
- **Understanding misconceptions about AI use.** One common misconception is that AI use is easy to detect. In reality, it is difficult to identify AI-generated content, especially when "human-like" plug-ins are used or the correct prompts are applied, making detection software often unable to make the distinction (Nikolic et al., 2024). Another misconception concerns well-conceived self-reflections or subject-specific assessments thought not to be written by AI tools, while AI can in fact generate sufficiently convincing reflections – including references to subject content, cases or personal development. There is also the misconception that AI frequently "hallucinates"; that is, it produces fabricated information. By discussing, explaining and refuting these misconceptions internally, support for the necessary changes can be created.
- **Higher education institutions can consider various strategies** when revising their approach to assessment security and transformation. Concrete steps for secure assessment include:

- Evaluate the risk for each assessment method: Identify assessment methods in the institution that are vulnerable. Make a table of all assessment methods and score the AI misuse risk (high/medium/low). Focus first on high-risk assessment methods, such as unsupervised online exams (online proctoring) or standard essays.
- Consider the assessment programme in its entirety: Do not just look at individual subjects, but consider the programme as a whole. Identify which learning objectives are assessed where. Has at least one adequate assessment moment been included for each essential competence, conducted in a controlled setting under supervision?
- Apply the two-lane approach for AI integration (see box): This holistic approach contributes to a coherent, AI-aware assessment programme and policy.
- Take pedagogical-didactical methods into account: Evaluate whether the teaching method influences AI-related risks. A subject that concludes with a project presentation (including questions) carries a lower risk of AI misuse than the same subject concluded with a take-home written assignment. An alternative working form may be a solution.
- Assess technical tools: If AI detection tools or plagiarism software are used, approach them critically. Understand their limitations and false positives, and agree on how results will be used (as an indication, not hard evidence). Consider other technologies, such as proctoring or lockdown browsers, but remain aware of their impact on privacy and student wellbeing.
- Incorporate AI into integrity policy: Ensure that AI is explicitly included in broader policy on academic integrity and awareness. Update existing guidelines and plagiarism prevention training, and provide information sessions with examples related to AI. Develop new materials to supplement existing ones where necessary. One option is to require students to sign or submit an AI statement in which they declare if, how, when and why they have used AI – a practice already adopted by some institutions.
- Keep abreast of relevant and current developments: Follow developments in professional practice and the future professional field. If AI applications are increasingly used in the legal profession to generate legal documents, for example, providers of university law programmes – as well as higher professional education law programmes and vocational education programmes in Legal, Insurance and HR – will have to consider how to prepare their students for this and, in that light, recalibrate their testing and examination methods. The world is changing, and teaching and assessment programmes must adapt accordingly.

Building on these two key principles (integrate AI where possible, but safeguard diploma quality), the Two-Lane Approach proposes two "lanes" for integrating AI into assessment programmes, based on the **function** of the assessment and aligned with coverage of the learning objectives.

Lane 1: Determining the quality of learning and student outcomes (*Assessment of Learning*): Assessment in Lane 1 focuses on determining the quality of student learning and outcomes in relation to the learning objectives, based on valid and reliable data-informed decision-making. This type of assessment takes place under controlled conditions and supervision, and AI use is either not permitted or only permitted to a limited degree. AI may only be used if:

- the learning objectives require it **and** the student's individual contribution is directly verifiable and traceable. This ensures that reliable, valid decisions can be made regarding the demonstrated performance and the student's individual efforts
- it can be determined with sufficient certainty **whether**, and to what extent, the student has independently mastered certain critical knowledge and skills, without direct or indirect interference from AI, or with directly traceable AI use aligned with the learning objectives. Consider assessment methods designed so that AI has no influence on the performance being measured, such as classroom-based exams with proctoring, oral examinations, practical skills tests or observations.

If AI **is** permitted in this decision-making assessment of the quality of learning and/or results of a student, it must be clear in advance **how** and under **what** conditions AI will be used. It must also be established how validity, reliability and measurability of the results will be safeguarded. Examples of AI application in Lane 1 include: AI-driven simulations (in which an examiner determines, in a semi-authentic context based on observations, whether and to what extent the student has mastered the intended knowledge and skills. For example, performing complex medical procedures or complex skills/competencies in simulated challenging contexts or exceptional circumstances – such as demonstrating customer care in the hotel industry when dealing with a demanding guest).

Another example is adaptive assessment, where AI analyses the student's responses during the assessment and dynamically adjusts the difficulty of subsequent questions. Irrespective of whether AI use is permitted in Lane 1 (under supervision and verifiable), the assessment must safeguard integrity and ensure that the performance assessed is genuinely the student's own.

Lane 2: Assessment for & as Learning: Assessment in Lane 2 focuses on making student learning visible and optimising it throughout the learning process, as well as on the outcomes in relation to the learning objectives. This form of assessment serves as a **starting point** and a means of **steering** the learning process. Assessment in Lane 2 is process-oriented – through data-informed support, adjustment and reinforcement of learning processes. In this lane, the use of AI is permitted or even required. The emphasis is on learning with, through and in collaboration with AI. This type of assessment focuses explicitly on the skills and insights needed for critical, ethical and correct use of AI. With this approach, students must demonstrate **when** and **how** they used AI, and how it contributed to their learning process and results. The quality of this AI-integrated learning approach is taken into account in the final assessment. Assessment in Lane 2 has an **open** character, since assessment assignments do not necessarily take place under supervision or are not fully controllable.

Consider, for instance, the use of AI in writing assignments, design tasks or the collection of evidence for portfolios. Assessment in this lane prepares students for situations where AI use is desirable or unavoidable and encourages them to work with AI in a proper and responsible manner. AI is used to support and enhance learning processes and outcomes. In this type of assessment, critical reflection and accountability for the learning process weigh heavily. For instance, it must be made transparent **which** AI tools have been used and **how** AI-generated output and feedback have been processed. This makes learning visible and optimally develops critical reasoning, problem-solving ability, creativity and AI literacy in authentic contexts.

Lane 1: Determining the quality of learning and student outcomes

Purpose: Assessment for decision-making purposes (valid and reliable) regarding level mastery/quality of the student's performance with regard to the intended learning outcomes, with or without the use of AI (attribution of learning outcomes).

Two-Lane Approach

Principle 1: Equipping students for responsible AI use

Principle 2: Reliable assessments tailored to learning objectives

Lane 2: Development-oriented assessment

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Purpose: Harnessing assessment as a learning tool through data-informed and

process-oriented support and reinforcement of students' learning processes, with optional or mandatory use of AI applications.

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Approach for effective, responsible and appropriate AI integration in assessment practices

	Lane 1	Lane 2
Function of assessment	Valid, reliable quality measurement to determine whether and to what extent the individual student has achieved the intended learning outcomes, on the basis of demonstrated output, with consequences for student progress.	Cyclical, development-oriented assessment in which evidence is collected (during or at the start of the process) about the student's development in relation to the learning objectives; teaching staff, students and peers use this information to support, adjust and reinforce their own learning process and ownership of the
Degree of supervision and control	Assessment takes place under direct supervision of an examiner. In principle, this is individual and verifiable. The student's performance/effort is authentic.	Assessment takes place without direct supervision of an examiner. It may be carried out individually and/or collaboratively, and the outcome is not fully verifiable at the level of the
Role of AI	Depending on the intended learning outcomes, AI use may be limited or excluded (for example, deliberately excluded in tasks where the student must demonstrate skills without AI, or limited to cases where correct AI use itself is being assessed).	Depending on the intended learning outcomes, AI use may be encouraged or even required (for example, to teach students responsible AI use and encourage it where it adds value).
Examples	Traditional classroom-based exams (with proctoring), oral examinations (viva voce), practical skills tests or simultaneous in-class observations where AI is not or hardly usable.	Using AI for reflection, critical reasoning, analysis, generating new perspectives, brainstorming, structuring, making connections and as a feedback partner. The goal here is to strengthen learning processes.

Coherence & demarcation: The strength of the Two-Lane Approach lies in the deliberate and reasoned integration of AI applications, and in students' (acquired) responsible and correct use of these applications throughout their studies. It contributes to an AI-aware assessment practice that is aligned with educational activities and learning objectives. Students do not need to explicitly experience this two-track division; it is the responsibility of the design team to ensure coherence and continuity in the approach. Every assessment programme should ideally include both Lane 1 and Lane 2 forms of assessment for each learning pathway, educational unit or course (Liu et al., 2023), in a logical sequence and alternation. The two lanes complement each other and ensure constructive alignment within the overall educational offerings (Curtis, 2025). Critical learning objectives are safeguarded in the first lane, thus ensuring the value of the diploma, while assessment in the second lane ensures that students are prepared for professional practice where AI use is a reality.

In fact, existing assessment programmes already incorporate various assessment functions – balanced and well-founded – that are aligned with educational activities and learning objectives.

The Two-Lane approach supports the integration of AI into this already well-considered range of assessments, while making clear where assessment requires adjustment or revision when an existing assessment method no longer matches the intended function. This means that for each assessment, the following explicit question must be asked: What is the purpose of this assessment, and how does AI use relate to that purpose? Once this is clear for each assessment, we can determine whether it falls in Lane 1 or Lane 2 (or a combination of the two), and design the required conditions and support accordingly.

Checklist 7: Assessment programme & integrity
Short term (< 12 months):

- Conduct an institution-wide "AI risk analysis for assessment": identify vulnerable components in each programme or subject and prioritise improvement actions.
- Identify, for each programme, where, how, when and in what form critical learning objectives are assessed and check whether these methods are appropriate for the desired degree of AI resilience or AI proficiency; in case of a mismatch between objectives, requirements or practice, this has to be redesigned.
- Prioritise the safeguarding of assessments with significant consequences or decisions, where the risk for reliability and validity is high.
- Communicate with and provide professional development for support staff and practitioners in the area of AI literacy – inform them about potential misconceptions, applications, risks and urgency.

For vocational education and training schools: seek cooperation with certified examination providers to help safeguard the integrity of examinations.

Medium term (1–3 years):

- Ensure that the impact of AI is considered in cyclical processes, for example by reflecting on new or existing risks or opportunities in AI use during the assessment cycle, and reporting on this accordingly.
- Where relevant, make AI literacy an explicit learning objective and revise assessment designs as needed.

- (h) Develop a multi-year plan to revise or secure high-risk forms of assessment in stages.
- (i) Consider the cost-effectiveness of assessment activities from an institution-wide, holistic perspective: it may be more efficient to rigorously monitor a few major assessment points (Lane 1) and allow others to be more open (Lane 2), instead of perfunctory monitoring of everything.
- (j) Periodically evaluate whether learning objectives and assessment methods are up to date or if they require adaptation to the current state of technology and professional practice.

4.2 System changes

System-level adjustments are often needed in the organisation for these changes to take effect. “Systems” refers here to digital systems (e.g. a learning management system, assessment platforms, plagiarism detection) as well as procedural systems (templates, protocols, evaluation processes). Effective systems encourage and support staff in making necessary changes to their educational practice, while ensuring students are clearly informed about the institution’s expectations. System changes can be small and rapid to implement, such as updating assessment templates, front pages or the homepage of the learning management system. They can also entail substantial changes that are necessary for institutional transformation, such as enabling assessment at programme level. These kinds of far-reaching changes will take longer to implement, and the scope of the changes required and the manner of implementation will depend on the institution’s specific situation.

Key considerations

- **Learning management systems** must be evaluated to determine how AI can be integrated into them where relevant but also provide the right information to students. Review the existing learning management system (LMS) and other digital environments and adjust where necessary. Where do they need to be updated to support AI policy? For example, include a section with AI guidelines for each subject on the homepage, or integrate a module in the LMS allowing students to upload an AI statement along with assignments.
- **Identify internal adjustments** that could be made and determine where supplier support may be required (for major functional changes). Which areas can be updated or changes implemented internally, and which require support from external developers?

- **Update templates and grading rubrics.** Systems for assessment and development must be supported, such as the provision of templates and documentation that allow staff to adapt their teaching and assessment methods. Check all standard documents: exam cover sheets, grading rubrics, plagiarism statements, etc. Adjust them as necessary to address AI. For example, add a question to the submission form: “Have you used AI, and if so, in what way?” Or include a rubric criterion that rewards creative or appropriate use of AI where permitted. Small tweaks like these make the new practice explicit and provide clear frameworks for assessors and students.
- **Support teaching staff in developing assessment and examination assignments** (vocational education and training). Consider including examples of AI-aware tasks in assessment software or documentation. Offer templates for oral exams or combined assignments, (e.g. product plus oral defence). Document relevant cases and dilemmas and share these internally.
- **Embed AI in evaluations.** Include questions and dilemmas regarding AI use and experiences in existing tools (such as course evaluations or internal feedback loops). Gather input from students, teaching staff and partners in the professional field, for instance through surveys. This information can help monitor where AI is used most, and where needs, risks or opportunities may arise.

Checklist 8: Systems

Short term (< 12 months):

- (a) Update learning management systems as needed and bring the LMS and intranet up to date. Put central AI policy information in prominent places, such as a pop-up or a banner with “Read our AI guidelines”.
- (b) Explore available LMS functions to support or monitor AI use at programme level (some systems can log learning objectives versus AI use).
- (c) Update all relevant templates, guidelines or procedures; grading forms, syllabi, information materials for students, etc., should specify the institution’s AI policy.
- (d) Provide staff with sample texts to inform students about acceptable or permitted AI use in teaching and assessment activities (consistent language).
- (e) Offer teaching staff sample texts to reinforce messaging about AI use at key stages in the students’ learning journey.
- (f) Assess technological readiness of existing systems as a starting point for implementation plans.

Medium term (1–3 years):

- (g) Establish which system requirements cannot be met internally and consult with suppliers/developers for solutions (e.g. plug-ins for AI statements in e-portfolios). Use lessons learned from successful implementations, such as responsible AI chatbots (Li et al., 2025).
- (h) Continuously evaluate the systems in use: do they include all relevant AI aspects and options, or do they need to be adjusted?
- (i) When selecting new systems (e.g. assessment platforms, proctoring tools), ensure that explicit consideration is given to AI capabilities and risks. Use a systematic approach where feedback loops between technology, people and processes are central (Katsamakas et al., 2024).
- (j) Integrate AI policy into regular work processes. For instance, require newly developed assessments to be reviewed by assessment experts or using AI-aware design checklists before implementation.
- (k) Vocational education and training: Add AI checklists to validation forms, ensuring AI-aware use is guaranteed and validated by the examination board.
- (l) Develop learning analytics dashboards that provide both teaching staff and students with transparent insights into AI use, with a focus on privacy and ethical considerations (Lin et al., 2025).
- (m) Implement feedback loops for continuous improvement of AI systems based on user experience and achieved learning objectives (Katsamakas et al., 2024).

4.3 Communication strategy

A robust internal communication strategy is indispensable to getting all stakeholders involved in the AI transition. Staff and students must be informed clearly, consistently and in good time about the institution's position and policy on AI. Trust is a critical factor in the adoption of AI in education. Transparent communication on possibilities, risks and limitations of AI use is key to building this trust (Nazaretsky et al., 2025). An effective communication strategy informs (shares factual information and policy), guides (provides action perspectives), and educates (raises knowledge and awareness) in the target group. Sharing real-world examples is more important than focusing solely on technical details (Lyu et al., 2025). Make use of a wide range of channels and media to reach all target groups, from official emails and newsletters to infographics, workshops and videos. Tailor the tone and content to the target group (students, teaching staff, management, etc.) for maximum clarity.

Key characteristics

- **Planned and repeated:** An effective communication strategy for implementing the institution-wide AI strategy is built on accurate, timely and repeated messaging about ethical use of AI and the associated changes in teaching and learning (Ma, 2025). Do not communicate ad hoc, but follow a well-thought-out plan. Provide regular updates (e.g. a monthly AI news item or quarterly report) so that everyone stays informed about the latest AI developments. Repetition is key: important messages (such as “AI use is permitted, unless...”) should be delivered frequently through different channels to ensure they truly come across.
- **Iterative with a feedback loop:** Use an iterative strategy with a feedback loop to ensure that communication continues to respond to the needs of the supported target group. Pay specific attention to differences in digital skills among target groups (Zhang et al., 2025). Check whether communication is getting through. Ask for feedback: do people understand the guidelines, do they know where to find information? Adapt the strategy based on that input. The communication strategy itself is therefore consequently constantly evolving.
- **Differentiated approach:** Develop a detailed strategy that addresses the different information needs of different stakeholders. Research into AI perceptions among stakeholders highlights substantial differences: students focus on practical applications and efficiency, while teaching staff also want information on maintaining integrity and implications for their work (Tsiani et al., 2025). Ensure all stakeholders are well informed about changes in policy, procedures and systems and other actions regarding the ethical use of AI. This way, everyone involved in the strategy receives the relevant information for their specific role. Be mindful of different information needs. Students want to know practical do's and don'ts (what is permitted, what is not); teaching staff may want guidance on handling inappropriate AI use, how to reflect AI use in rubrics or whether AI can play a role in decision-making. Communicate relevant messages to each target group, depending on their role. For example, create a dedicated FAQ for teaching staff and one for students.
- **Involve students in developing the communication strategy:** Develop the institution's strategy in collaboration with students and involve them in its implementation. By collaborating with students, the message is more likely to reach and resonate with them. Invite students to contribute ideas on how they can best be reached. Their input can help select the most effective tone and channels. Instagram or Discord may be best for quick reminders to students, whereas teaching staff may prefer messages through internal communication systems.
- **Multi-channel approach:** Use multiple channels: email, LMS messages, campus posters, short videos, webinars, etc. A diversity of channels increases the chances that everyone sees something. For example, consider an AI newsletter or a recurring section in existing communication outlets (such as a column in the student newspaper or the teaching staff community newsletter).

- **Rapid and responsive:** If new challenges arise (e.g. a sudden hype around a new tool), the institution needs to respond rapidly with a position or guidance. This is necessary to prevent misinformation and uncontrolled use (López-Costa et al., 2025). Maintain short communication lines and clearly assigned responsibilities: who sends messages in urgent situations?
- **Specific feeds for each target group:** Consider dedicated newsfeeds: for example, a separate “AI update for staff” focused on didactic and organisational aspects, and a student feed aimed at ethical use of and agreements about AI. This prevents unnecessary noise and information overload.
- **Central information hub:** Create a central AI hub (website or intranet page) where all information can be found. This serves as a reliable reference source for policies, frameworks and guidelines to handbooks, contact points and FAQs. Keep the hub up to date – someone must be responsible for regular updates.
- **Accessibility and inclusion:** Ensure all communication is accessible and inclusive: use clear language (avoid unnecessary jargon), offer translations where necessary (especially for international students or teaching staff), and consider accessibility options (readable PDFs, subtitles on videos, etc.).

In short, treat communication as a strategic part of AI implementation and not as an afterthought. A well-informed community will accept and understand changes more readily.

Checklist 9: Communication

Short term (< 12 months):

- Immediately inform newcomers about where they can find AI guidelines and expectations, such as in welcome emails, orientation activities and induction sessions.
- Use existing channels (LMS, newsletter, student app) to communicate policy updates and AI-related expectations consistently.
- Update all student and staff handbooks, regulations, guidelines and online FAQs with the latest agreements on AI.
- Regularly update induction materials for teaching and support staff – both written resources and information shared in briefing sessions about AI policy.
- Organise institution-wide awareness activities around “responsible AI use” before key assessment periods to ensure everyone remains vigilant.
- Involve various partners in communication efforts: ask students, teaching staff and perhaps someone from the industry to participate in developing communication materials for broad support.
- Encourage peer-to-peer learning: for example, organise lunch sessions where colleagues or students share AI experiences and promote these sessions to increase participation.
- Launch the AI web page/hub mentioned above and populate it with all necessary information; highlight the hub regularly so that it is not overlooked.
- Develop communication protocols for rapid responses (within 48 hours) to new AI developments.

Medium term (1–3 years):

- Develop a year-round communication calendar: plan AI-related messages on different channels, matched to specific moments (such as the start of the collegiate year, prior to dissertations, exam weeks, etc.).
- Segment communication where useful: consider separate newsletters for IT staff, programme directors, etc., so everyone receives relevant information.
- Annually evaluate the effectiveness of communication: is everyone sufficiently informed? Adapt the strategy based on feedback and new objectives.
- Implement multimodal communication (text plus visuals plus audio) for complex or ethical AI issues to increase understanding and insight,

5. Sector-specific examples of AI integration in assessments

Each tertiary education sector – vocational education and training, higher professional education and research-oriented education – faces its own challenges and opportunities regarding AI use. In vocational education and training, the emphasis is on practical applications; in higher education, the focus is on protecting academic integrity (Yan et al., 2024). Below, a concrete example is provided for each sector to illustrate how these guidelines can be contextualised. These examples illustrate how AI can be integrated into assessments in a way that is appropriate for the sector and what lessons can be learned from this.

EXAMPLE 1

VOCATIONAL EDUCATION: creative assignment with AI in portfolio

In vocational education and training, where authentic assessment and practice-oriented learning are key, there are opportunities to use AI for realistic simulations and creative processes. One example comes from a creative programme (SintLucas), where students use AI as an inspiration source for design assignments. The following question arose with respect to assignments: Can a student include AI-generated images in a portfolio assignment? The examination board permitted it, provided the student clearly states which tool (e.g. Adobe Firefly) was used and the final product demonstrates their own creative input. The focus of assessment shifted to the design process: students had to document the steps they took, which choices they themselves made and how AI supported their work. Consequently, the board was able to ensure that the learning objectives (creativity, professional skills) were genuinely achieved by the student, even with AI as a tool. This example demonstrates a broader trend in vocational education and training: the rising importance of process-oriented documentation. Research on AI literacy in practice-based programmes has shown that students who explicitly document their thought processes develop significantly better problem-solving skills (Promma et al., 2025).

The example also shows that AI can be successfully integrated into vocational programmes without undermining summative assessments and exams: transparency requirements and process-based assessment keep individual professional skills visible. There is certainly room for the use of AI in vocational education and training, as long as it is clear that it is students themselves that meet the qualification requirements. This example also highlights the importance of clear guidelines: students knew that AI use was permitted, but also what kind of accountability was expected. That created a level playing field and encouraged responsible experimentation with new tools.

Safeguarding authentic professional competence while embracing AI innovations is a challenge. This can be addressed by including different forms of assessment in the curriculum. For example, through hybrid portfolio assessments (combining tasks where AI use is permitted with those where it is excluded), practical exams in which students demonstrate key skills without AI involvement and controlled settings where students show what they can achieve with AI. But also by explicitly including AI competencies in assessment frameworks in addition to professional skills and other assessment criteria.

EXAMPLE 2

HIGHER PROFESSIONAL EDUCATION: Using ChatGPT for grading assignments – a case study

In higher professional education, where assessment is competence-based and often includes practical assignments, universities of applied sciences also have to deal with AI. A striking case involves a lecturer at a university of applied sciences who used ChatGPT to grade open-ended exam questions in order to save time without informing students or the examination board of this. Students noticed that the feedback and grades were unusual and felt disadvantaged. They submitted a complaint about the fairness of the grading. The examination board, which had initially not been aware of the AI use, investigated the matter and concluded that it had been handled carelessly. Following this incident, the institution introduced this guideline: AI can be used to support grading, but never without the knowledge and approval of the examination board, and never autonomously.

This case illustrates that teaching staff must be transparent if they wish to use AI in assessments, so that the examination board can verify if this is within existing ethical and quality frameworks. There is scope in higher professional education for AI assistance (for example to speed up grading or to allow students to use AI in projects), but clear agreements are essential. Research has shown that AI can be used effectively for generating exam questions, for example in STEM subjects, but human validation remains indispensable to ensure quality (Chan et al., 2025). Examination boards in higher professional education ensure that degree programmes apply the chosen policy consistently. It is now often set out in the exam regulations under what conditions AI use in assessments is permitted, and when undeclared or unauthorised use is regarded as fraud. Nevertheless, students must be properly informed about what constitutes permitted, undesirable and unauthorised AI use in teaching and assessment practices. Teaching staff must coordinate and make clear agreements on this. Clarity at the start prevents suspicion or confusion later on. Sector-wide efforts (via the Netherlands Association of Universities of Applied Sciences) are being made to ensure consistency so that students everywhere receive similar explanations of what constitutes “unauthorised AI use.” The case study of AI used for grading illustrates how important it is to maintain trust between students and teaching staff.

Transparency and central frameworks are useful in this respect. The pressure on teaching staff to work more efficiently, given the high workload, sometimes clashes with the need for transparent assessment processes. Transparent integration of AI in assessments is necessary to keep the workload manageable without loss of quality.

EXAMPLE 3

RESEARCH-ORIENTED EDUCATION: Making AI use transparent in theses

In research-oriented education, there is a strong emphasis on academic integrity and student autonomy. Research universities are grappling with the question of how to guarantee originality of work if AI can be used in theses and essays. Research into AI as a co-teacher in higher education shows that structured AI integration into academic writing can significantly improve the quality of student work, provided that it is linked to explicit reflection and critical reasoning activities (Niloy et al., 2025). One example from practice: a number of research universities have introduced AI statements in thesis and dissertation processes. Students are required to state explicitly in their research reports (for example in the methodology or acknowledgements section) whether and how they have used AI tools during their research. For example: “For the literature review, Elicit was used to find relevant sources; all generated results were validated by the author.” This transparency ensures that assessors know exactly which parts may have been AI-assisted. It also compels students to reflect, as they must account for their AI use as part of their academic skills.

Consistent with this, universities are increasingly adopting the policy that presenting AI-generated output as one’s own work, without any attribution to the process by which it was created, amounts to plagiarism. Students are expected to use AI responsibly – if desired and permitted – for example by treating it as a source and including its use in their accountability, with proper source referencing. In addition, some programmes combine written work with an oral defence to ensure that the student has mastered the content. This was seen in one experiment where students wrote an essay in which they were allowed to use AI for the first draft, but then had to defend this essay in a colloquium. This revealed which students truly understood the material.

In research-oriented education, banning AI completely is unrealistic and undesirable – it can be a useful tool for research, but transparency and additional in-depth assessment are necessary to safeguard academic attainment. Teaching staff in research-oriented education need support in assessing AI-assisted academic work, with the focus on evaluating critical thinking and originality within AI-driven learning environments (Tan et al., 2025).

The combination of AI statements, oral checks and a culture of honesty helps to embed AI use responsibly in assessment processes. Examination boards are tightening their rules in this area and exchanging best practices. Universities in the Netherlands are following suit with policy papers and guides for teaching staff and students that emphasise: “AI use is permitted, provided you disclose this and assess it critically.” Ensuring academic originality while using AI in research calls for innovative approaches. For example, combine AI-assisted written work with compulsory oral defences or viva voce exams. Develop a systematic approach that requires students to document, for each chapter or section, exactly what their own contribution is and what is AI input. Or introduce courses on “AI-enhanced research methods” where students learn how to use AI responsibly in academic research. A layered approach strengthens academic integrity while preparing students for contemporary research in which AI tools have become standard.

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