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Online Assessment: From Evidence to Guidelines

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Gap Analysis

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Contextualisation



- The activity was developed in the first year of the REMOTE project, approximately in the first half of 2024.
- After a preliminary phase of analysing scientific literature and directly gathering opinions from experts and professionals (by partner Universities/Agencies), a **questionnaire** was conducted to investigate "gaps", i.e., weaknesses/criticalities in remote teaching/assessment.
- The questionnaire was distributed to hundreds of lecturers and students from the four European Universities participating in the project.
- The following slides describe the design, administration and results of the questionnaires, from the dual perspective of students and faculty.



Design: Dimensions & Aspects

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Scientific literature review	
Focus groups, expert panels from partner universities/agencies	

Dimension Aspect / Construct D		Description	Applicable to	
			(S)	(L)
1. Resource	1.1 Accessibility to materials	Ease of access to teaching materials from any location.	✓	X
availability and	1.2 Accessibility to evaluation	Ease of access to resources (software and hardware) for an		
accessibility	resources	effective online evaluation.	✓	✓
	1.3 Access equity	Equal access to technological resources for online teaching and		
		assessment.	✓	✓
2. Technical	2.1 Connection and web	Technological stability and reliability of online platforms for		
responsiveness	platform adequacy	lectures and exams, in addition to the quality of the Internet		
		connection.	✓	✓
	2.2 Student-lecturer	Effectiveness of communication, mutual interaction and		
	interaction	support in an online learning context.	✓	√
	2.3 Technical problem solving	Ability to manage technical problems during online lectures and	,	,
		exams.	√	
3. Training	3.1 Preparation and training	Preparation and training of lecturers on the use of online		,
	for managing lectures	technologies to conduct exams and online evaluation.	X	√
	3.2 Preparation for managing	Preparation and training of lecturers on the use of online		
	the evaluation	technologies to conduct online exams effectively, including the	V	,
		creation of assessment materials.	X	√
	3.3 Institutional support to	Level of support and assistance provided to lecturers by the		,
	lecturers	institution for online teaching and evaluation.	X	
4. Online	4.1 Adequacy of assessment	Adequacy of assessment methods in use to the online context.	,	,
assessment	methods		√	√
	4.2 Adequacy of evaluation	Promptness and quality of feedback provided to students	,	,
	feedback	following exams.	√	√
	4.3 Quality of education	Online activities can undermine the achievement of the	,	,
F.C. 1.1	540 L P 9	expected learning outcomes.	√	
5. Social	5.1 Gender diversity	Online activities can for some reason undermine gender	,	,
dynamics	F. B. Community	equality.	~	V
	5.2 Community	Online activities can undermine the sense of belonging to the	,	V
	E 2 A - demis intermits.	university community.	V	^
	5.3 Academic integrity	Extent to which online exams maintain high ethical standards,	,	,
	(honesty)	including anti-fraud measures.	٧	V

Key: (S) → Student perspective **(L)** → Lecturer perspective

		REMOTE Erasmus+	
Dimension	Aspect	Item	Scale
		5.1.1 To what extent do you believe that online activities promote gender equality?	1 - To a great extent 7 - Not at all
	5.1 Gender diversity	5.1.2 Evaluate the extent to which gender biases affect the learning experience in your online courses.	1 - Not at all 7 - To a great extent
		5.1.3 How inclusive do you find the online learning environment in terms of gender representation?	1 - Very inclusive 7 - Not inclusive at all
		5.2.1 Rate the effectiveness of online platforms in facilitating a sense of community among students.	1 - Highly effective 7 - Not effective at all
5. Social dynamics	5.2 Community	5.2.2 Rate the sense of belonging to the university or academic community you experience in an online learning setting.	1 - Feel a strong sense of belonging 7 - Do not feel a sense of belonging at all
		5.2.3 To what extent do you feel connected to your peers in the online learning environment?	1 - Very connected 7 - Not connected at all
		5.3.1 How frequently do you encounter situations in online exams where	4 Navar 7 Aburus

5.3.3 Evaluate the extent to which you believe online exams maintain principles

of ethical conduct (e.g., fairness, honesty, integrity, etc.).

5.3 Academic

integrity

(honesty)

1 - To a great extent ... 7 - Not at all

- **1** Never ... **7** Always

- academic integrity is compromised? **5.3.2** Assess the likelihood of students engaging in dishonest behaviors due to **1** - Very unlikely ... **7** - Very likely the perceived ease of cheating in online environments.

1 - Very effectively ... **7** - Not

1 - Fully supported ... 7 - Not

effectively at all

supported at all

			Design: Items & Scales (L) Lecturer perspective	REMOTE Erasmus+
	Dimension	Aspect	Item	Scale
	an m. led 3. Training fo	3.1 Preparation and training for managing lectures 3.2 Preparation for managing the evaluation	3.1.1 How adequate do you find the provided training for conducting online lectures? (If no training was provided at all, answer "Completely inadequate")	1 - Very adequate 7 - Completely inadequate
			3.1.2 How relevant do you find the training content to your actual teaching needs? (If no training was provided at all, answer "Not relevant")	1 - Highly relevant 7 - Not relevant
			3.1.3 How much do you feel that the training enhances your effectiveness as an online lecturer? (If no training was provided at all, answer "Does not enhance")	1 - Greatly enhances 7 - Does not enhance
			3.2.1 How effectively does the training prepare you for creating online assessment materials? (If no training was provided at all, answer "Not effectively at all")	1 - Very effectively 7 - Not effectively at all
			3.2.2 How sufficient do you find the training for using online tools and technologies in assessments? (If no training was provided at all, answer "Insufficient")	1 - Very sufficient 7 - Insufficient
			3.2.3 How relevant is the training content to the specific types of assessments you administer? (If no training was provided at all, answer "Not relevant")	1 - Highly relevant 7 - Not relevant
		3.3 Institutional	3.3.1 How responsive is the institution to your needs and challenges in online teaching?	1 - Very responsive 7 - Not responsive at all
		< < inctitutional		

3.3.2 How effectively does the institution facilitate access to necessary online

3.3.3 To what extent do you feel supported by the institution in developing your

teaching resources?

online teaching skills?

- support to lecturers
- **3.3** Institutional

Administration



Online platform

European Universities

Questionnaire versions





- → Flexible
- → Complex yet powerful
- → Cost-effective

































Universidade do Minho

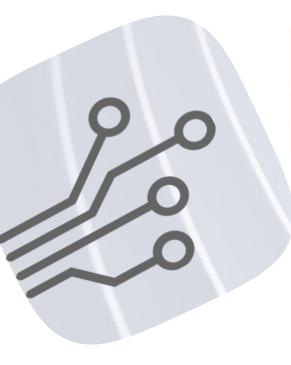






- **Aggregation** of responses at multiple levels (items relating to the same aspect, aspects relating to local/global groups of respondents, etc.), to translate them into a **single reference indicator** (i.e., the "average rank").
- Perspectives (S) and (L) were analysed separately.
 - Further details can be found in the (open access) **paper**:

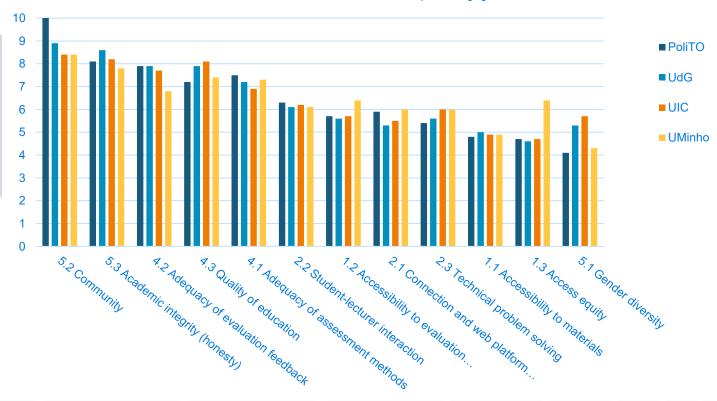
 Maisano, D.A., Carrera, G., Mastrogiacomo, L., Franceschini, F., "Remote STEM education in the post-pandemic period: challenges from the perspective of students and faculty". **Int J Educ Technol High Educ,**21, 64 (2024), https://doi.org/10.1186/s41239-024-00497-8



Results: Data Analysis



Pareto chart of the most critical aspects (S)



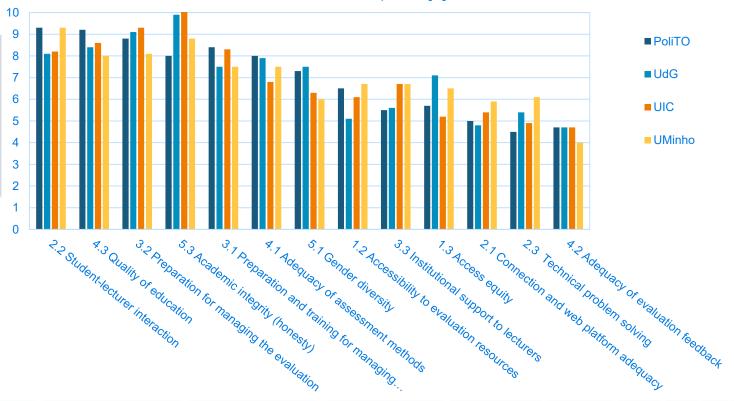
	UdG	UIC	UMinho
PoliTO	0.938 (0.000)		0.901 (0.000)
UdG	,	0.987 (0.000)	0.834 (0.001)
UIC			0.801

Pearson's correlation table

Results: Data Analysis







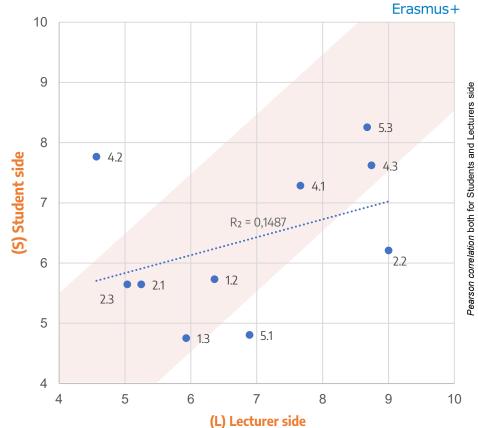
	UdG	UIC	UMinho
PoliTO	0.840 (0.000)		0.836 (0.000)
UdG	,	0.836 (0.000)	0.808 (0.001)
UIC			0.859

Pearson's correlation table

Results: Data Analysis



Aspect	Ref. ind	licator
	(S)	(L)
1.1 Accessibility to materials	4.9	N/A
1.2 Accessibility to evaluation resources	5.7	6.4
1.3 Access equity	4.8	5.9
2.1 Connection and web platform adequacy	5.6	5.2
2.2 Student-lecturer interaction	6.2	9.0
2.3 Technical problem solving	5.6	5.0
3.1 Preparation and training for managing lectures	N/A	8.1
3.2 Preparation for managing the evaluation	N/A	8.7
3.3 Institutional support to lecturers	N/A	6.0
4.1 Adequacy of assessment methods	7.3	7.7
4.2 Adequacy of evaluation feedback	7.8	4.6
4.3 Quality of education	7.6	8.7
5.1 Gender diversity	4.8	6.9
5.2 Community	9.4	N/A
5.3 Academic integrity (honesty)	8.3	8.7









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Benchmark of Best Practices

Maria Manatos, A3ES, Portugal



















Content and Goals

Identifies and analyses examples from HEIs and EQAAs across Europe and globally

Aims to support effective, inclusive and trustworthy remote assessment models

Methodology





BENCHMARK FRAMEWORK



- Practice description
 (title, description, goals, context)
- 2. Implementation details (stages, stakeholders, resources)
- 3. Assessment and impact (benefits, challenges, feedback, lessons)
- 4. Additional information



IDENTIFICATION OF GOO PRACTICE

- Project partners provided examples from their own institutions and from other European HEIs and EQAAs
- Literature review to gather additional evidence on remote teaching, learning, and assessment practices
- Selection based on impact, innovation, applicability to STEM contexts, and transferability









FACULTY DEVELOPMENT

Politecnico di Torino's TLab offers incentivised training on digital pedagogy, flipped classrooms, and interactive lecturing, increasing faculty engagement and teaching quality

FLEXIBLE POLICIES

Institutions like Politecnico di Torino allow defined quotas of remote teaching (15%), balancing pedagogical innovation with operational needs while maintaining faculty autonomy

ACADEMIC INTEGRITY

Tools like ACME, SMOWL, and assessment decision guides ensure scalability and reliability in remote assessment while preserving trust in results

COMMUNICATION AND PREPARATION

Guidelines, mock exams, room scans, contingency plans and mechanisms for user feedback ensure that students are only wellinformed and supported.

Best practices demonstrate a shared commitment to quality, inclusion, and innovation in remote teaching and assessment approaches

Best Practices in EQAAs



DEDICATED EVALUATION CRITERIA

Agencies like A3ES, ANVUR, ANECA, QQI, and AQU Catalunya have developed specific guidelines for remote learning modalities, increasing transparency and comparability.



ENHANCED EVALUATION METRICS

Several agencies have moved beyond traditional indicators to include pedagogical soundness, digital infrastructure, and learner support in their evaluation rubrics.



STAKEHOLDER CO-DEVELOPMENT

Tools are co-developed with HEIs and stakeholders, alongside targeted training for institutional QA teams, evaluators, and academic staff.



EXPECTATIONS FOR SECURE, FAIR, ACCESSIBLE ASSESSMENT

Guidelines, mock exams, room scans, contingency plans and mechanisms for user feedback ensure that students are only well-informed and supported.



INTERNATIONAL COOPERATION AND SHARED QA PRINCIPLES IN TRANSNATIONAL EDUCATION

Frameworks such as APEC's Toolkit and NSQOL promote international cooperation and shared QA principles across jurisdictions, enabling stronger international, shared and standards and alignment with global initiatives

Alignment with HEI Standards





Standards

- 1. Institutional policies on online teaching, learning and assessment
- 3. Transparency and integrity
- 4. System requirements, technical responsiveness, tools and resources

2. Assessment objectives and methods (fitness for purpose)

- 5. Scientific disciplines tailored and adaptable tools
- 7. Teaching staff training and technical support
- 8. Door interaction (students) and notworking (
- 8. Peer interaction (students) and networking opportunities
- 9. Accessibility and equitable access to technologies and resources10. Information management and storage

6. Information and support for learners

- 11. Student-lecturer interaction and students' evaluation feedback adequacy
- 12. Public information

✓ Different degrees of alignment with the standards

= Weak or indirect alignment

= Strong alignment

= Moderate alignment

Alignment is indicated using the following scale:

Monitorina

Alignment with EQAAs Standards





- **Strong alignment:** Operational guidelines, especially in the areas of integration into QA processes, transparency, and inclusion of digital expertise in review panels
- Gaps: Particularly in ensuring STEM-sensitive assessments, formalizing blended learning criteria, and defining structured appeals processes tied to digital formats

Alignment is indicated using the following scale:

- = Strong alignment
- = Moderate alignment
- = Weak or indirect alignment or information unavailable





HEIs have invested in faculty training, flexible policies, and robust digital platforms that promote active learning and academic integrity and addressed challenges of equitable access and workload management in remote environments.

EQAAs are increasingly embedding e-learning within their **review mechanisms**, involving reviewers with digital expertise, and promoting transparency in reporting.

HEIs and EQAAs demonstrate moderate to strong alignment with **quality standards** by integrating digital assessment into strategic frameworks.









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Guidelines for the Evaluation of Remote Assessment

Marilena Maniaci, ANVUR, Italy















Purpose and Goals

Produce Guidelines intended to serve both HEIs and EQAAs in the implementation of robust practices in remote assessment, aimed at the following goals:

- Assessment and evaluation: develop tools and methods to measure student progress in remote and hybrid learning
- ✓ **Continuous improvement:** equip HEIs and EQAAs with methodologies and tools to adapt, monitor, and enhance remote learning and assessment practices
- ✓ **Equity and fairness:** ensure assessment methods promote equal access to quality education and assessment for all students, independently of gender and including those with special needs
- ✓ **Long-term implementation:** Develop a roadmap to help EQAAs implement the Guidelines over time, supporting HEIs' governance, staff, and researchers in maintaining effective and up-to-date online assessment practices

Background



- Activites of the REMOTE project
- Previous research and documents on the topic (mainly the TeSLA project)
- Ongoing distance-learning experiences in the participating countries (Italy, Portugal, Spain) and in other international contexts

Focus

Primary **focus**

- √ verifying knowledge
- ✓ verifying practical skills and competencies
- ✓ evaluate creativity and innovation

Aspects to be always considered

- ✓ Understanding and interpretation
- ✓ Application of knowledge
- ✓ Critical analysis and evaluation
- ✓ Synthesis and creativity

Principles

- ✓ **Validity**. The chosen method must measure what it claims to assess without distortions. For example, teamwork skills should be evaluated through collaborative projects rather than multiple-choice quizzes.
- ✓ **Reliability**. Results should be consistent and reproducible, requiring clear evaluation criteria, detailed rubrics, and Guidelines to minimize subjectivity.
- ✓ **Flexibility**. Assessments should adapt as much as possible to different learning styles and student needs, allowing various formats such as written tests, oral presentations, or practical projects.
- ✓ **Fairness and inclusivity**. All students must have equal opportunities, with accommodations for learning difficulties, disabilities, or technical barriers in online assessments



Main Online Assessment Types

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Type of assessment	Best for	Pros	Cons	Tech enhancements
Oral and video assessments	Evaluating conceptual understanding, design explanations, lab results	Helps verify originality, allows for personalized feedback	Time-intensive for both students and instructors	Al speech analysis, live Q&A components
Online quizzes and automated tests	Basic knowledge checks, concept understanding, quick feedback	Immediate feedback, scalable, easy to grade	Risk of cheating, limited to multiple-choice or short- answer formats	Al proctoring, randomized question banks, adaptive testing
Remote proctored exams	High-stakes assessments requiring strict academic integrity	Mimics traditional exams, deters cheating	Privacy concerns, technical issues, accessibility problems	Live or Al-based monitoring, lockdown browsers, behaviour recognition
Open-book & take-home exams	Assessing application of knowledge rather than memorization	Encourages problem-solving and research skills	Harder to control collaboration and external help	Plagiarism detection software, time constraints
Online lab simulations and virtual labs	Practical STEM learning (chemistry, physics, biology, engineering)	Hands-on experience without physical labs, cost-effective	May lack real-world complexity, requires internet access	AR/VR labs, remote access to real lab equipment
Coding and technical assignments	Computer science, engineering, mathematics	Authentic skill-based assessment, highly interactive	Time-consuming grading, potential for code sharing	Auto-grading tools, version control tracking, Al-based plagiarism detection
Project-based and problem- based assessments	Engineering, applied sciences, group collaboration	Encourages deep learning, teamwork, and innovation	Difficult to assess individual contributions	Peer assessment tools, video presentations
e-portfolios and reflective journals	Tracking student progress over time, self-assessment	Encourages metacognition, great for long-term projects	Subjective grading, time- consuming to review	Automated feedback systems, digital badges
Peer and self-assessment	Encouraging collaborative learning and critical thinking	Develops evaluation skills, provides diverse feedback	Requires training for students to assess effectively	Al-assisted feedback suggestions, rubric-based automated scoring
AI-based and learning analytics approaches	Personalized assessments, real-time performance tracking	Adaptive learning, predicts student struggles	Privacy concerns, requires extensive data processing	Al-based automated grading, personalized learning pathways

Standards for the Evaluation of Remote Assessment



- 1. Institutional policies on online teaching, learning and assessment
- 2. Assessment objectives and methods (fitness for purpose)
- 3. Transparency and integrity
- 4. System requirements, technical responsiveness, tools and resources
- 5. Scientific disciplines tailored and adaptable tools
- 6. Information and support for learners
- 7. Teaching staff training and technical support
- 8. Methods to support peer interaction (students) and networking opportunities (learners)
- 9. Accessibility and equitable access to technologies and resources
- 10. Information management and storage
- 11. Student-lecturer interaction and students' evaluation feedback adequacy
- 12. Public information

Example I Standard 1. Institutional policies on online teaching, learning and assessment



The institution adopts **appropriate policies** to ensure that online teaching, learning, and assessment conforms to ethical standards and is embedded in the organisational culture and values. Online educational offer and e-assessment should also be **aligned with the institution's pedagogical model**, as well as academic and legal regulations. Achievement of objectives is verified on a regular basis.

INDICATORS	MINIMUM EVIDENCE REQUIREMENTS
1.Through appropriate policies, the institution provides guidance on: - e-Assessment organization and administration. - Protection against academic fraud, including plagiarism detection and identity verification. - Accessibility for learners with disability, limited technology, or low-tech educational environments. - Adequate and timely technical support for both learners and teaching staff. - Training for students and staff on ethical conduct, responsible AI use, and academic integrity in e-assessment. 2.The institution's policy framework governs the introduction and responsible use of new technologies, including AI and adaptive learning tools, to maintain the expected quality, fairness, and reliability of e-assessment. 3. A policy and a code of practice is provided for electronic security measures to govern electronic security measures, data privacy, and ethical use of learner data. These policies cover: - Privacy, security, and consent in data collection and processing. - Purpose and scope of learning analytics and AI-driven assessment decisions. - Cybersecurity measures to protect sensitive learners and institutional data. - Ensuring transparency and fairness in AI-based grading and automated feedback. 4.The institution has a development plan which includes an e-assessment strategy detailing responsibilities, roles, and procedures, as well as mechanisms for regular review and quality assurance of e-assessment practices.	 Evidence of a quality assurance policy outlining mechanisms, instruments, and responsibilities to monitor system functionality, user feedback, performance evaluations, and compliance with quality standards. Evidence of institutional assessment regulations, covering a) accessibility policies for learners with disabilities and equity considerations (e.g., low-tech environments, connectivity challenges); b) regulations on alternative digital assessment methods and pedagogical models, ensuring alignment with quality standards and academic integrity. Evidence of a policy for regular e-assessment reviews and updates, ensuring a cyclical approach based on: a) stakeholder feedback (students, faculty, QA bodies); b) performance data and technological advancements; c) compliance with pedagogical and academic standards. Evidence of policy for the sustainable provision of the technological system including a) regulations for data security and privacy protection (aligned with European and national regulations); b) cybersecurity policies and risk management frameworks; c) long-term financial planning to ensure the system's continued functionality. Evidence of policy and Guidelines for external sourcing of the technological system and vendor agreements, including a) compliance with data protection and security standards (GDPR, ISO certifications); b) contractual agreements defining service levels, data ownership, and institutional control over assessment technologies; c) performance evaluation mechanisms for external providers.

Example II Standard 5. Scientific disciplines tailored and adaptable tools



The institution ensures that digital tools and assessment methodologies employed in scientific disciplines are **adaptable**, **discipline-specific**, **and capable of addressing diverse learning and evaluation needs**. These tools must align with pedagogical objectives, technological advancements, and principles of academic integrity, fostering an inclusive and effective learning environment.

Indicators	MINIMUM EVIDENCE REQUIREMENTS
The institution provides a range of adaptable digital tools tailored to different scientific disciplines, ensuring that assessments align with the specific nature of each subject (e.g., virtual laboratories, coding environments, computational simulations).	✓ Institutional policy documents detailing the selection criteria, alignment with educational objectives, and integration process for discipline-specific digital tools used in eassessment.
The selection and implementation of digital tools are guided by discipline-specific requirements, ensuring they support practical applications, immersive simulations, and collaborative research.	✓ Reports from periodic reviews evaluating the effectiveness, academic integrity, and adaptability of digital tools used in scientific assessment, ensuring they meet pedagogical and technological standards.
 Digital tools are regularly updated and assessed for their effectiveness in achieving pedagogical objectives, maintaining academic integrity, and ensuring accessibility. Updates align with technological advancements and best practices in higher education. 	✓ Documentation of faculty development programs, student training sessions, and technical support services, demonstrating efforts to enhance digital tool usage in scientific disciplines.
4. Provisions are in place to ensure equitable access to digital tools, particularly for students with disabilities or those requiring additional support, through assistive technologies and adaptive learning strategies.	✓ Feedback reports from students and instructors, assessing the impact of digital tools on learning outcomes, student engagement, and usability, with recommendations for improvements.
5. Systematic training and technical support are provided for faculty and students to maximize the effective use of digital tools in scientific learning and assessment. This includes learning analytics and feedback mechanisms.	✓ Examples of discipline-specific implementations of adaptable tools, such as AI-driven assessment platforms, virtual labs, coding environments, and interactive simulations, showcasing their role in scientific learning and evaluation.
 Mechanisms for data-driven evaluation and continuous refinement of digital tool integration are established, leveraging learning analytics, student engagement tracking, and automated feedback loops. 	

Recommendations for QA Agencies

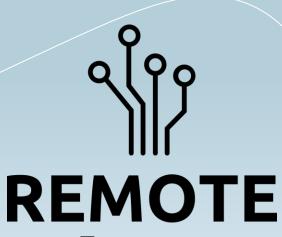


- Integration of QA for e-learning and e-assessment into existing QA processes
- 2. Acknowledgment of the specific needs of e-learning in review processes
- 3. Motivations for blended assessment approaches
- 4. Inclusion of reviewers with e-learning expertise in peer review teams
- 5. Clear criteria for assessing learning outcomes
- 6. Transparency in reporting
- 7. Appeals procedures

Final Remarks

- ✓ **Listening to experience**: insights and feedback gathered from students and teachers were invaluable in shaping realistic, evidence-based standards
- ✓ **Collaboration**: joint work between agencies and universities has shown that quality assurance and educational practice must evolve together
- ✓ **STEM as inspiration, not limitation**: the standards' structure and principles are transferable to all fields of study.
- ✓ **A rapidly changing landscape**: with the rise of AI, data analytics, and new digital tools, continuous updating of the standards will be necessary to remain relevant.
- ✓ **Balancing innovation and trust**: digital transformation must be accompanied by strong safeguards for integrity, fairness, and transparency to maintain public confidence.
- ✓ **From assessment to enhancement**: the of assessment focus should move beyond compliance toward becoming a driver of improvement and learning innovation.
- ✓ **Building capacity and inclusiveness**: ongoing training, dialogue, and shared resources are essential to support staff, students, and institutions in implementing these standards effectively.
- ✓ **Sustaining the reflection**: The REMOTE project has started a process it now calls for a continuing European conversation on quality in online and blended education.





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THANK YOU!