StudES Quality standards for Digital Learning Environment

Standards and guidelines for quality online teaching and learning







Preamble

StudES

It is generally accepted that the existing Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG 2015), if appropriately interpreted could be used as a backbone processes for quality assurance "regardless of the mode of study or place of delivery", including those for e-learning (ENQA, 2018). However, it is the responsibility of quality assurance agencies as well as higher education institutions to further improve methodological development of ESG 2015 in e-learning quality assurance, and particularly some standards require special guidance on how they can be applied (ENQA, 2018). It has been noted that the quality assurance of online learning courses provision has been given far less consideration, namely in the realm of external quality assurance (EUA, 2014).

Following the emergency remote teaching which took place during the Covid-19 pandemic, higher education institutions need specific, effective and accurate tools, i.e. quality standards and guidelines on its implementation, to facilitate the evaluation of remodeled courses delivered in blended or fully online mode.

Although there is a number of quality standards for e-learning and online courses issued from different sources, they should be critically evaluated and carefully revised to adapt to the specific educational context.

Detailed desk research of the available literature has been conducted, and relevant standards from different sources have been mapped against the ESG 2015 in order to perform their comparative evaluation and identify and select those standards which would be of most importance for self-evaluation and internal quality assurance within higher education institutions (HEIs) aimed at design and development of meaningful and rich learning experience.

StudES Quality standards have been developed to complement the existing standards (related to traditional, physical learning environment) in the context of Digital Learning Environment (DLE) and facilitate integration of e-learning quality assessment in the overall quality assurance and continuing enhancement in higher education.

It is envisioned that it may be a useful tool for self evaluation and also serve as a training resource for teaching competencies development.



ENQA Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) (2015)

ENQA Occasional paper 26. Considerations for quality assurance of e-learning provision (2018)

EUA E-learning in European Higher Education Institutions (2014)

Based on the comparative review of the existing quality standards, as well as the StudES Roadmap for the Enhancement of Digital Readiness in Higher Education, the identified topics related to elearning, and digital learning environment (DLE) which should be further addressed and elaborated include specific aspects of: (i) strategic planning and policy development (ii) course design and delivery, (iii) instructional materials development; (iv) academic staff professional development and support; (v) students assessment; (vi) students support, (vii) digital technology infrastructure, and (viii) code of conduct in DLE.

HEIs are expected to address e-learning in their strategic planning and policy development irrespective if it is a part of blended learning where e-learning is used in combination with more traditional face-to-face teaching and learning, or fully online courses are delivered.

The list of standards proposed is presented in the Text-box 1. Each standard is further elaborated to include relevant: (a) statement; (b) description and (c) note for guidance on the use of the standard, which include relevant issues to be addressed and/or indicators to be provided (where appropriate).





EADTU Quality Assessment for Elearning: a Benchmarking Approach (2016)

Punie, Y., editor(s), Redecker, C., European Framework for the Digital Competence of Educators: DigCompEdu, EUR 28775 EN, Publications Office of the European Union, Luxembourg, 2017

StudES Roadmap for the Enhancement of Digital Readiness in Higher Education (2021)

StudES Quality standards for T&L in DLE

Standard 1: E-learning strategic planning and policy development

Standard 2: Online course design and delivery

Standard 3: E-learning instructional materials development

Standard 4: Teaching staff support and professional development for DLE

Standard 5: Student assessment in DLE

Standard 6: Online students support and progress monitoring

Standard 7: Digital infrastructure and technology

Standard 8: Code of conduct in DLE

Institutional strategic planning should include a vision for the use and development of e-learning within the institution and provide a timescale for the achievement of strategic goals. Different aspects of e-learning provision should be integrated in the overall institutional strategy and institutional policies regulating curriculum development, course design and delivery, instructional materials development, teaching competencies development, students support and progress monitoring, availability and access to digital infrastructure, privacy, safety and integrity issues, and overall teaching and learning experience.

HEI management should actively support development of quality online and blended courses and secure necessary resources.

Virtual mobility of staff and students should be available and recognized by home institution.

Continuing development should be based on selfevaluation and feedback received from different stakeholders (students, staff, external experts and quality assurance agency).



Standard 1 E-learning strategic planning and policy development

HEI has in place strategic planning and policies which support continuous development and improvement of quality teaching and learning in a digital environment.

- Institutional mission, vision, goals and objectives include relevant aspects of quality online or blended teaching and learning;
- e-learning strategy and action plan (available as separate document or part of the overall institutional strategy) is periodically evaluated and revised to include planning related to necessary technical (infrastructure, equipment, software, etc) and human (staff development) resources;
- Organizational unit responsible for DLE planning and evaluation is established with the capacity to monitor the changing technology and educational practice and inform strategic planning;
- There is an evidence on the development of policies that encourage and facilitate virtual mobility of staff and students, including the interinstitutional agreements on virtual exchanges;
- Institution uses learning analytics (including data generated within the learning management system) to support learning, teaching and assessment and to improve the design and quality of future courses;
- Feedback from students, teachers and other stakeholders is collected, reviewed and included in the planning and improvement cycle;
- Detailed and up-to-date information about the courses are readily available.

Effective online course should provide a rich and stimulating learning environment which reflects the programme and course objective and specific learning goals.

It is preferable that an online course design complies with an iterative design process, based on ADDIE¹ model that ensure the full design cycle of analysis (competence gaps and learner's needs), design (course curriculum and scenario), development (production of activities, communication and content), implementation (delivery for students and monitoring) and evaluation (feedback for students and instructors is analyzed and addressed).

It is recommended that the didactic relationships model² be used for online course analysis and design since it can serve as quality assurance and provide documentation to show that all the factors that are most important for a good learning and teaching process have been taken into consideration (purpose and settings; target group; content; learning outcomes; pedagogical approach; online course organisation; learning activities and resources; evaluation).

Course outcomes should be realistic, clearly stated, measurable and attainable in a digital learning environment and on a specific course level (SMART criteria³). Definition of the learning goals needs to correspond with a relevant taxonomy (eg. Bloom's) and be aligned with purposeful activity design for a specific goal's level. The constructive alignment principle should be applied ensuring that the learning outcomes, the teaching and learning activities, and the assessment tasks are all aligned and coherent.

Relevant learning activities should contribute both to subject related educational outcomes, as well as the acquisition of digital competence and other transferable skills (problem solving, communication, organization, team work etc). Activities should promote learners' engagement and active learning, preferably encompassing Kolb's model for effective learning experience on a programme and a course level.



Standard 2 Online course design and delivery

Online course design and delivery are well aligned with the defined learning outcomes, and corresponding teaching and learning activities purposefully support and enable development of relevant competencies.

¹ ADDIE stands for Analyze, Design, Develop, Implement, and Evaluate

² Bjørndal and Lieberg (1978)

³ SMART stands for Specific, Measurable, Achievable, Relevant, and Time-Bound

A variety of online activities incorporating methods for stimulating also higher-order skills need to be applied in order to cover six main areas of learning (eg. as in ABC Learning Design) of acquisition, collaboration, discussion, investigation, practice and production.

Design of learners' interactions with content, learners and instructors should be balanced and aligned with learning goals defined for a specific learning unit. Depending on the design principles (self-paced course, instructor-led course etc.) appropriate interactions support the achievement of learning goals.

Students' workload should be carefully estimated, and appropriate level of flexibility introduced into the course schedule. Balanced extent of synchronous and asynchronous teaching and learning activities should be provided along with effective and accessible communication channels.



Standard 2
Online course design and delivery

- Course design cycle including evaluation and refinement is planned for an online course design;
- Course outcomes/educational outcomes are specific, relevant, measurable and achievable;
- The balance between online and face-to-face learning activities in a blended course is planned and justified based on their effectiveness towards achievement of the intended learning outcomes;
- Instructional materials, teaching and learning activities, including the assignments are well aligned with the predefined learning outcomes and assessment strategies;
- Instructional materials, teaching and learning activities incorporate interactive features that engage students in group work and encourage personal interaction with other students:
- The content of the course (learning resources, tasks and assignments) is well structured on learning platform enabling an appropriate course progression. Part of this structure is also facilitation of learning activities students are expected to perform online (students need to be well informed about what to do and when to do it).
- Online learning environment is clear, informative and intuitive.
- Students' assessment is embedded into course design;
- Credit points assigned to individual courses are consistent with the relevant national and international norms and take into account the perceived students workload;
- Course timeframe (i.e. deadlines and time necessary for task realization) is clearly communicated.

Designing instructional materials need to address and comply with specific learning goals defined for a particular learning unit on a programme, course and activity level. Designing the learning flow with a careful selection of relevant digital learning content needs to adhere to constructive alignment, that is a logical sequence of goals, activities, assessment and accompanying content. This relationship is embedded in the learning design.

Use of educational resources with interactive elements such as interactive multimedia presentations and interactive videos, and elements of gamification encouraged. In addition, variety of accessible content formats, such as text, audio and video, graphic aids and images as well as web pages help to meet the need of diverse learners. Use, re-use and development of instructional materials must take into account legal requirements, be it global or local. Intellectual property rights (IPR) issues must be addressed so that the materials do not infringe copyright but enable to pool the relevant resources for educational purposes. Open resources (OER) with a licensing system (Creative Commons standards) are advised as a reliable and effective means for digital content creation.

Developing instructional materials with the view to the needs of diverse learners significantly changes the learning experience for all. Principles of universal design can impact the engagement, perception and creativity of your learners and as such need to be addressed during the design process. Minimum requirements for text alternatives, user-friendly navigation, contrast and layout as well as providing enough time for accessing the content.



Standard 3 E-learning instructional materials development

E-learning instructional materials are developed with the main purpose to support achievement of learning goals defined (see Standard 2) and facilitate competence development. They also need to comply with accessibility standards and take into account intellectual property rights.

- Instructional materials and activities support achievement of defined learning goals and are a part of a course design;
- Constructive alignment of outcomes, activities, assessment and corresponding minimum content is a key for online learning design;
- E-learning materials provide sufficient interactivity to encourage active engagement and enable students to test their knowledge, understanding and skills both through independent individual work (using simulations, animations and quizzes), as well as in collaboration with other students and instructor (forums, wikis or web conferencing);
- IPR, proper attribution and preferably using open licenses where possible for both development and re-use of educational materials need to be observed according to the international and local IPR legal requirements and practice;
- Digital learning content needs to comply with accessibility criteria for online materials and address the needs of various learners;
- Web Content Accessibility Guidelines (WCAG) as a standard for digital educational content and service and along with UX (user experience and usability) design principles enable to develop user-friendly and effective learning environment for both learners and teachers;

It is important for HEI to recognize and support the development of teaching staff competencies necessary for design and delivery of quality online education. As online teaching and learning requires much effort and is time-consuming, adequate provisions for ensuring quality results needs to be implemented.

DigCompEdu has been developed as a common European Framework for the Digital Competence of Educators. It provides "a common language and approach that will help the dialogue and exchange of best practices across borders and can be adapted to implement regional and national tools and training programmes". The DiaCompEdu framework is directed towards educators at all levels of education, from early childhood to higher and adult education, including general and vocational training, special needs education, and non-formal learning contexts. DigCompEdu framework describes six areas of professional, educational and learner's competences (Professional engagement, Digital resources, Assessment, Teaching and Empowering learners, Facilitating competences) with 8 proficiency levels. It is important that the institution incorporates the framework to its quality procedures in terms of creating and evaluating training programmes and preferably also teachers' professional development assessment schemas.

Availability of the training and development options need to encompass not only technical tutorials but need to cover a broad spectrum of competences, including social and communication, preferably according to the DigCompEdu.

Continuous development is essential for the academics not only in their research areas but also for their teaching competences. Promoting educational research and innovation in teaching as well as recognition of teaching excellence is pivotal for the quality course delivery.

Appropriate organizational measures, especially in terms of calculating the workload, technical and pedagogical support and provisions for digital resources are necessary for the quality of online learning. These factors are beyond individuals' capacities and require the involvement on the institution level.



Standard 4 Teaching staff support and professional development for DLE

HEI recognizes the essential role of competent and highly motivated teaching staff in online courses development and delivery. Appropriate training and support for continuing teaching competencies development is provided which include both pedagogical and technological aspects of teaching and learning in DLE.

Punie, Y., editor(s), Redecker, C., European Framework for the Digital Competence of Educators: DigCompEdu, EUR 28775 EN, Publications Office of the European Union, Luxembourg, 2017, ISBN 978-92-79-73718-3 (print), 978-92-79-73494-6 (pdf), doi:10.2760/178382 (print), 10.2760/159770 (online), JRC107466.



Standard 4 Teaching staff support and professional development for DLE

- There is appropriate training for teaching staff available which include both pedagogical and technological aspects of T&L in digital learning environment;
- There is appropriate support available from relevant organizational unit and specialist technical staff;
- Financial resources for staff training and support are timely planned and allocated within the institutional budget;
- Opportunities for exchange of knowledge, experiences and good practice are available through organization of internal seminars and/or other channels and events in order to maintain awareness of emerging technologies and new educational approaches (intelligence gathering);
- Teaching competences, including digital competences, are recognized as pivotal and evaluated as part of academic portfolio in teaching staff promotion;
- Educational research and innovation is integrated in the institutional quality culture;
- Teaching staff is encouraged to research, evaluate and publish on their innovative teaching practice;
- Institutional rewards for excellence in teaching and learning in DLE are established to promote further DLE development.

The primary purpose of student assessment is to provide feedback on the effectiveness of individual learning in relation to the predefined learning outcomes, and to use this information to help students make the learning process more effective (i.e. through self-assessment and self-regulation). One of the advantages of the digital learning environment is that it offers different opportunities for interactive formative assessment with immediate automated feedback.

Assessment and grading need to be embedded into the course design (eg. following the Backward design principles) and aligned with learning goals and volume of coursework and its credit ranking. The choice of assessment methods and techniques should be adapted to the nature of the expected learning outcome. Information about the type and extent of assessment, relevant criteria and expectations should be made available at the beginning of the course.

Due attention should be given to the effectiveness and integrity of the assessment system - verification of student identity, and measures to prevent impersonation and plagiarism.



Standard 5 Student assessment in DLE

Student assessment is embedded into course design, aligned with the course outcomes and consistent with learning activities and resources. Tools and methods of online assessment are accessible for all learners and ensure integrity of assessments as well as the right to privacy and fair treatment.

- A range of assessments strategies is provided which are well aligned with the defined learning outcomes and support competencies acquisition;
- There is a balance between formative and summative assessment;
- Students are informed about the nature of assessment and grading;
- There are established policies and procedures to manage and uphold the integrity of assessment;
- Relevant and timely feedback on the assessment results is provided to all the students;
- Assessment outcomes and feedback on methodology and technical aspects of assessment received from students is evaluated and used as an input for continuous improvement.

The main objective of student support in a digital learning environment is to provide pedagogical and technical support for learning, as well as counselling and orientation necessary for student wellbeing and success. There should be clear and easily accessible information available to students on the course size, model of delivery, its content, course materials, types of assessment, as well as information and advice on technical and administrative matters.

Teachers' presence and access to teaching staff is an important aspect of student support. Different online communication tools, both asynchronous and synchronous, should be made available (e-mail, forum, chat, videoconference, etc.).

Measures should be taken to enable participation of the underserved students population, which is also associated with the specific demands for accessibility (see Standard 3) and availability of relevant ICT resources (see Standard 7).

Creation of learning communities is an important aspect of student support as it encourages social and informal learning, provides opportunity for peer support and reduces isolation in a digital environment. Teachers should facilitate creation of online learning communities which contribute to student success and overall positive student experience. Online community spaces, such as discussion forums, also allow staff to respond and interact with students. Student progress should be continuously monitored and relevant interventions taken timely when students who may be at risk of failure are identified.



Standard 6 Students support and progress monitoring

Students support is provided throughout the course both for technical and subject-specific issues. Teacher presence, as well as course instructions, manuals and tutorials are available and provide necessary orientation.

- Students are provided with clear and up-to-date information about their courses, including teaching, learning and assessment methods;
- Students are provided with guidelines stating their rights, roles and responsibilities;
- Students have access to learning resources, including online library access;
- Institutional materials and information accessible through DLE are regularly monitored, reviewed and updated;
- Various online communication tools are available and facilitate effective communication;
- Group sizes are adequate for the proposed mode of teaching and learning;
- Learning analytic data is used to monitor student progress and target student support;
- HEI has established mechanisms for student supervision and performance monitoring and relevant preventive and corrective measures are timely employed.

Quality teaching and learning in a digital environment requires reliable digital infrastructure which is developed in accordance with the course specific requirements and defined learning outcomes. Continuous development of technical infrastructure for e-learning should be informed by an institutional strategic plan (see Standard 1). Necessary resources include relevant hardware, software, and internet access for students, academic staff and administrative staff. Availability of relevant system, communication video management conferencing tools, and support equipment such as microphones, headsets and cameras should be ensured. As relevant tools are rapidly evolving, their detailed listing would be overly restrictive. The institution should adopt a strategy that allows continuous development integration of emerging technologies in education.

The selection of a particular system, which may influence teaching developments for many years, should be driven by both educational and technical requirements. Educational requirements include delivery of learning resources, facilities for online communication and tools for assessment. Technical requirements should include reliability and security standards.

Technical support services in selection, acquisition and maintenance of ICT equipment and networks are delivered by IT professionals at the institution or by externally appointed service.

Secure systems for storing and analyzing data on students' learning activities and interactions with university online systems (learning analytics data) should be available.



Standard 7 Digital infrastructure and technology

HEI provides digital infrastructure which is reliable and adequately support achievement of the defined learning outcomes. The tools available should promote active learning, interaction and engagement as well as cater for individual learning strategies.

- Institutional ICT infrastructure is up-to-date and meets the educational requirements of academic staff and students enrolled;
- Appropriate financial resources are allocated for ICT maintenance and update, as well as licenses to software and digital educational resources;
- Relevant IT support services are available *in house* or from the contract organization;
- Data on students' learning activity and interactions with digital learning platform (learning analytics data) are continuously collected and evaluated;
- Users data and privacy are in compliance with relevant institutional, national and global regulation and best practices.



Participation in online teaching and learning is associated with specific issues which may cause misunderstanding and conflict if not addressed timely. Institutional code of conduct should set relevant rules and expectations which will facilitate mutual understanding, provide guidelines for constructive communication between teachers and students, as well as among the students in DLE and prevent unacceptable behaviour.

Code of conduct should include specific topics related, but not limited to academic integrity, privacy and data protection, copyright, use of social media AI text generators and/or smart devices, use of learning analytics, as well as the consequences of misconduct and violation of the Code which are consistent with general institutional policies.

Students should take an active part in the design of the Code.

Standard 8 Code of conduct in digital learning environment

HEI has established the Code of conduct which sets the expectations and provides guidelines for teachers and students professional and effective communication and collaboration in DLE.

- HEI has established the Code of conduct which is available to all the teaching staff and students;
- This Code of conduct is aligned with the relevant institutional policies on academic integrity, privacy and data protection, copyright, use of social media, AI text generators and smart devices;
- Students and staff are aware of the principles of ethical and professional behavior in DLE and the consequences in the case of misconduct;
- Code of conduct is periodically reviewed and revised based on the input received from different stakeholders (students, teaching staff, IT staff).

Glossary

Common understanding and terminology use is of particular importance. EADTU Quality Assessment for E-learning: a Benchmarking Approach (2016) document provides valuable resource. Therefore, unless otherwise stated, majority of definitions in this Glossary are adopted as provided in EADTU (2016).

ABC Learning Design High-energy, handsdevelopment curriculum workshop developed at UCL in 2015 to help develop programmes and review provision. Teaching teams work together to create a 'storyboard' visualising the learner journey based on their activities through the course of study. As teaching teams build the storyboard, they reflect on the purpose, structure and outcomes of their current or planned modules. In this process, teaching practice is discussed and opportunities to enhance the student journey may be identified and agreed. (https://abc-ld.org/)

Accessibility The extent to which a course is designed to allow disabled students to take part in all the activities available to their non-disabled peers and achieve all the learning outcomes. This includes technical aspects such as conforming to accessibility standards, the provision of alternative formats, and processes for making reasonable adjustments to accommodate individual needs.

ADDIE model Instructional Design method employed as a framework in designing and developing educational and training programs. "ADDIE" stands for Analyze, Design, Develop, Implement, and Evaluate. This sequence, however, does not impose a strict linear progression through the steps. Educators, instructional designers and training developers find this approach very useful because having stages clearly defined facilitates implementation of effective training tools. (https://educationaltechnology.net/the-addiemodel-instructional-design/)

Blended learning A mix of e-learning with traditional teaching and learning practices. Typically there is a combination of face-to-face interaction with online learning.

Constructive alignment Constructive alignment is a design for teaching in which what it is intended students should learn and how they should express their learning is clearly stated before teaching takes place. Teaching is then designed to engage students in learning activities that optimise their chances of achieving those outcomes, and assessment tasks are designed to enable clear judgments as to how well those outcomes have been attained (Biggs, 2014).

Course A well-defined module of study, typically of a term or semester in duration. In this manual, a course is understood to be synonymous with a module and not with a qualification.

Curriculum A broad term covering both academic and subject requirements and the processes for organising and managing the teaching and learning.

Distance learning A mode of study that allows the learner to study most or all of a course without attendance at a campusbased institution.

Feedback Advice and commentary given by a teacher on examinations, coursework, or classroom activity. This can be oral or written and helps learners to understand their progress. Flaming In online communication (e.g. discussion forums), exchanges of increasingly angry and offensive messages, often caused by a breach of netiquette.

Flexibility Provision of study such that students can choose their own time, pace and place of learning. It also describes how programmes of study may allow students to choose courses or topics of particular interest to them.

Formative assessment Assessment aimed primarily at determining the strengths and weaknesses of a student's work, with the objective of improvement. Formative assessment demands feedback to the student in some form and may, but will not always, contribute to summative assessment.

Interactivity Methods of teaching and learning that include techniques in which learners communicate with each other and tutor. be with the Interaction may synchronous (e.g. telephone) or asynchronous (e.g. email). It is also used to refer to the way in which learning materials themselves are designed to require the active participation of learners.

Kolb's model Learning theory based on the premise that "Learning is the process whereby knowledge is created through the transformation of experience" (Kolb, D. A. (1984). Experiential learning: Experience as the source of learning and development (Vol. 1). Englewood Cliffs, NJ: Prentice-Hall)

Learning analytics The measurement, collection, analysis and reporting of student activity, particularly tracking their use of web pages, in order to visualise and analyse learning interactions. This can be for a number of purposes: the institution can gain insight into the effectiveness of courses, teachers can detect problematic areas of a course, teachers can monitor their students' learning, and individual learners can visualise their achievements and behaviour in relation to others.

Learning management system A system that focuses on the administration, tracking and recording of learning or training. In higher education contexts, these functions are often subsumed into a VLE.

Learning outcomes Statements indicating what a learner should have achieved in respect of both knowledge and skills at the end of a given course or programme.

Online A term describing activity that requires a connection to the Internet.

Open Educational Resources (OER)Materials offered freely for use by teachers and learners. 'Freely' in this context means without charge and with few or no restrictions on the way material can be adapted and reused.

Plagiarism Using the ideas or writings of another as if they were one's own, (i.e. without acknowledging the original author).

Program A sequenced set of courses or modules representing a student's total study requirement and usually leading to an award on successful completion.

Reliability (of a computer system) The ability of a system to continue to perform correctly, both in routine and unusual circumstances. (of assessment) The consistency and repeatability of assessment.

Social media / Social networking site Web sites and apps (such as Facebook) devoted to supporting and representing links between individuals based on real-life connections or shared activities and interests. Social media may be used to support online communities.

Stakeholder A broad term to include students, teachers, educational managers, employers, etc., any of whom will have a legitimate interest in aspects of the learning provision.

Summative assessment Assessment (often taking place at the end of a course or programme) leading to the attribution of a grade or a mark to the student. The results of summative assessment determine whether a student progresses to the next stage of the programme or, on completion, gains an award.

Transferable skills Skills such as communication, problem-solving and teamwork that can be applied in different academic and work contexts.

Virtual Learning Environment (VLE) A set of computerised systems or tools which allow controlled access by students to online course materials and the facilities needed to support learning. Typically, a VLE is accessed via the and web will contain tools for course/programme registration; content management, including access to external resources; student-student and student-tutor discussion; tracking student activity; secure submission of assignments; assessment; access to course/programme information; access to student support systems; etc.

Virtual mobility The use of information and communications technology as an alternative to physical mobility to allow students to study programmes from other institutions as part of an award of their home institution.



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