A Guide to Quality in Online Learning

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With the eruption of MOOCs (Massive Open Online Courses) in 2012, online learning became a hot topic for the world's news media. In reality, the MOOCs story merely added momentum to the steady growth in online learning that has occurred since the turn of the millennium.

Today there are few students with reliable Internet access who do not explore the possibility of undertaking some of their courses online; few faculty members who do not wonder about the implications of technology-mediated learning for their teaching; and few higher education institutions that are not grappling with the development of institutional policies for online learning. This is a global phenomenon.

As they engage with online education, institutions discover that success means far more than pouring traditional instructional approaches into new technological bottles. Fortunately, individuals, institutions and professional bodies in many countries are addressing the challenge of how to make online learning a quality experience for students. This Guide distils this widespread experience and extensive research into a compact and readable account, while also providing an extensive bibliography if you seek to explore particular issues further.

New forms of collaboration, both among institutions and with the private sector, are accompanying the growth of online learning. This Guide has been commissioned by Academic Partnerships, which is helping numbers of institutions globally to ensure the quality and financial sustainability of their online offerings.

We were delighted to secure the services of Neil Butcher and Merridy Wilson-Strydom to prepare this Guide. Being based in South Africa, they are familiar both with countries where technology is abundant and also with places where connectivity cannot be taken for granted. Now that online learning is an important development priority for institutions everywhere, this dual perspective is vital.

It has been a pleasure for us to work with such expert and professional colleagues. We hope the result will be useful not only to those who are new to online learning, but also to institutions that have already encountered some of the challenges that it poses.

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■ Introduction

What is quality in online learning? Existing quality assurance frameworks, guidelines, and benchmarks show that quality in online learning has many dimensions. But we can distil these into a number of common issues to which practitioners and students should attend.

This guide summarizes the key quality issues in online education in a concise and accessible manner, with an annotated reading list to help you to pursue particular topics further. Academics and professionals in higher education are our primary audience. We consider academics and students as the key stakeholders for online education, and have written the guide with this principle in mind.[1] It is structured in the form of 16 'Frequently Asked Questions', followed by an additional reading list focused on quality benchmarks and international best practices.

While a short guide cannot unpack all the rich debates about online learning quality, we have tried to flag key issues so that you can explore topics of special interest in more detail. To enrich the background, we cite examples from higher education around the world.

1 What is online learning?

People use the term online learning in many different ways. Most broadly, it refers to a method of delivering educational information using the internet. This may range from downloadable content (such as iTunes university content, digital textbooks, and video or audio materials) through informal teaching (such as Massive Open Online Courses – MOOCs[2]) to fully structured online courses that include assessments and the awarding of a qualification.[3] Online learning in this last category is our main focus in this guide.

Online learning frees education from the constraints of time and space that go with face-to-face teaching. It can be a more accessible form of learning for people seeking a range of educational opportunities, and is the basis of many distance education programmes.[4] But online learning and traditional classroom learning are not opposites, although they are sometimes presented as such. Online learning should rather be seen as a different teaching and learning method that can be used by itself or to complement classroom teaching. Similarly, online learning does not mean replicating face-to-face teaching in an online environment (see FAQ 3 below). The power of online teaching and learning is that it gives different – and sometimes better – learning experiences.[5]

Formal online learning uses the internet. It therefore requires that students have access to the internet and an adequately equipped desktop PC, laptop, tablet, or other suitable device. In many instances (although certainly not all), there is some form of broadband connectivity.[6]

2 How is online learning offered?

In this guide we mostly use the term institution to designate an organisation offering online learning. However, because of the methods they use and the technology infrastructure that they require, online teaching and learning make new demands on higher education institutions. For this reason, institutions frequently enter into partnerships with commercial enterprises to support their online learning programmes. For example, most universities that offer MOOCs, which require a computing infrastructure capable of handling large numbers of people online simultaneously, partner with companies such as Coursera,[7] Udacity,[8] or Futurelearn.[9] For universities that decide to offer a selection of their regular programmes online, companies such as Academic Partnerships[10] offer a range of services from course conversion through student recruitment and mentoring to technical support.

U21Global (**www.u21global.edu.sg**) is another interesting example of partnership in the provision of online learning. With a focus on global management education, U21Global was founded in 2001 with 16 founding member universities, representing ten countries.[11] At present, U21Global has more than 9,000 students and alumni from 72 countries. Senior academics from the four leading partner universities constitute the academic senate of U21Global, the body responsible for assuring quality, in line with the quality standards of each partner university.

We do not explore the details of such partnerships in this guide. The key principle is that higher education institutions must always take full responsibility for the quality of the qualifications that they award, so references to institutions subsume any partnerships that they use to facilitate their online teaching and learning and any unbundling of the processes involved.

3 What constitutes quality in online learning?

The concept of quality in online learning is as complex as the reality of online learning itself. There is a vast literature on quality in higher education, with a profusion of terms and concepts. It often identifies a tension between two roles of quality assurance: as a means of accountability and as a route to quality improvement. There is another key debate about the role of the student in defining quality. Some argue that defining quality in higher education should begin with the assumption that online learning is a process of co-production between the online learning environment and the student, with the student perspective taken as the starting point of quality development across the various areas of online learning provision.[12] These tensions 'become more demanding as new modes of provision increasingly become part of traditional campus-based higher education provision and as institutions try to use the same mechanisms to deal with these completely new forms of courses.'[13]

What then constitutes quality in online learning? Several different benchmarks or quality standards have been defined and tested in numerous contexts around the world. The reading list in the appendix to this guide provides short summaries and links to many examples. Although the terminology and emphasis differ, common aspects of a quality experience in the online learning environment can be identified. These are:

- Institutional support (vision, planning, & infrastructure)
- Course development
- Teaching and learning (instruction)
- Course structure
- Student support

- Faculty support
- Technology
- Evaluation
- Student assessment
- Examination security

To give a concrete example, the Quality Matters Program (**www.qmprogram.org**), based in the USA, has established national benchmarks for online courses and has become a 'nationally recognised, faculty-centred, peer process designed to certify the quality of online courses and online components'.[14] It has developed a series of rubrics to meet the specific needs of different education sectors. Each rubric is based on thorough scholarly research, while accompanying helpful literature reviews are available to download from the QM website (**http://www.qmprogram.org/rubric**). Central to the QM understanding of online learning quality is the concept of alignment, which is evident when learning objectives, measurement and assessment, educational materials, interaction and engagement of learners, and course technology work together to ensure achievement of desired learning outcomes. Eight standards are defined. The rubrics present a set of evaluative dimensions for each standard. The eight areas (with component indicators) that can be seen to constitute quality in online learning within higher education in the QM Program are summarized below.

QUALITY MATTERS
P R O G R A M
QM

For more information visit www.QMprogram.org or email info@qualitymatters.org

Quality Matters™ Rubric Standards 2011 - 2013 edition
with Assigned Point Values ■■■

Standards		Points
Course Overview and Introduction	1.1 Instructions make clear how to get started and where to find various course components.	3
	1.2 Students are introduced to the purpose and structure of the course.	3
	1.3 Etiquette expectations (sometimes called "netiquette") for online discussions, email, and other forms of communication are stated clearly.	2
	1.4 Course and/or institutional policies with which the student is expected to comply are clearly stated, or a link to current policies is provided.	2
	1.5 Prerequisite knowledge in the discipline and/or any required competencies are clearly stated.	1
	1.6 Minimum technical skills expected of the student are clearly stated.	1
	1.7 The self-introduction by the instructor is appropriate and available online.	1
	1.8 Students are asked to introduce themselves to the class.	1
Learning Objectives (Competencies)	2.1 The course learning objectives describe outcomes that are measurable.	3
	2.2 The module/unit learning objectives describe outcomes that are measurable and consistent with the course-level objectives.	3
	2.3 All learning objectives are stated clearly and written from the students' perspective.	3
	2.4 Instructions to students on how to meet the learning objectives are adequate and stated clearly.	3
	2.5 The learning objectives are appropriately designed for the level of the course.	3
Assessment and Measurement	3.1 The types of assessments selected measure the stated learning objectives and are consistent with course activities and resources.	3
	3.2 The course grading policy is stated clearly.	3
	3.3 Specific and descriptive criteria are provided for the evaluation of students' work and participation and are tied to the course grading policy.	3
	3.4 The assessment instruments selected are sequenced, varied, and appropriate to the student work being assessed.	2
	3.5 Students have multiple opportunities to measure their own learning progress.	2
Instructional Materials	4.1 The instructional materials contribute to the achievement of the stated course and module/unit learning objectives.	3
	4.2 The purpose of instructional materials and how the materials are to be used for learning activities are clearly explained.	3
	4.3 All resources and materials used in the course are appropriately cited.	2
	4.4 The instructional materials are current.	2
	4.5 The instructional materials present a variety of perspectives on the course content.	1
	4.6 The distinction between required and optional materials is clearly explained.	1
Learner Interaction and Engagement	5.1 The learning activities promote the achievement of the stated learning objectives.	3
	5.2 Learning activities provide opportunities for interaction that support active learning.	3
	5.3 The instructor's plan for classroom response time and feedback on assignments is clearly stated.	3
	5.4 The requirements for student interaction are clearly articulated.	2

Course Technology	6.1	The tools and media support the course learning objectives.	3
	6.2	Course tools and media support student engagement and guide the student to become an active learner.	3
	6.3	Navigation throughout the online components of the course is logical, consistent, and efficient.	3
	6.4	Students can readily access the technologies required in the course.	2
	6.5	The course technologies are current.	1
Learner Support	7.1	The course instructions articulate or link to a clear description of the technical support offered and how to access it.	3
	7.2	Course instructions articulate or link to the institution's accessibility policies and services.	3
	7.3	Course instructions articulate or link to an explanation of how the institution's academic support services and resources can help students succeed in the course and how students can access the services.	2
	7.4	Course instructions articulate or link to an explanation of how the institution's student support services can help students succeed and how students can access the services.	1
Accessibility	8.1	The course employs accessible technologies and provides guidance on how to obtain accommodation.	3
	8.2	The course contains equivalent alternatives to auditory and visual content.	2
	8.3	The course design facilitates readability and minimizes distractions.	2
	8.4	The course design accommodates the use of assistive technologies.	2

The stress placed on each of these aspects in a particular online learning environment or course will depend on its nature, its purpose, and the context in which it is implemented.

4 How can institutions assure quality?

Assuring quality online learning in higher education first and foremost requires institutional vision, commitment, leadership, and sound planning[15] and, as noted in FAQ 2, this must also embrace any partnerships involved. In essence, the online learning policy must be aligned with the overall vision and mission of the institution. Leaders and managers must explain why online learning has been selected as an appropriate learning strategy for the students being served.[16] Where online learning is new or is supplementing traditional contact provision, it may be important to encourage innovation and quality through earmarked resources. Institutional policies for online learning should cover the constituent elements of quality identified above (see FAQ 3), contextualized so that they align with institutional realities. In addition, institutions need to comply with regulations that govern online learning, ensuring that they are reflected in policy and practice.[17] The Australasian Council on Open Distance and e-Learning (ACODE) benchmarks for quality e-learning provide a wealth of useful information and guidelines for institutions seeking to improve the quality of their online learning offering as does the Quality Assurance Framework of the Asian Association of Open Universities (AAOU).[18] The following performance indicators, presented by ACODE for institutional policy and governance for online learning, are a useful summary of key issues.

ACODE Performance Indicators for Institutional Policy and Governance

1. Institution strategic and operational plans recognise and support the use of technologies to facilitate learning and teaching.

2. Specific plans relating to the use of learning and teaching technologies are aligned with the institution's strategic and operational plans.

3. Planning for learning and teaching technologies is aligned with the budget process.

4. Institution policies specify the use of technologies to support learning and teaching covering all aspects and stakeholder perspectives.

5. Policies are well disseminated and applied.

6. The institution has established governance mechanisms for learning and teaching with technologies that include representation from key stakeholders.

7. Clear management structures identify responsibilities and authority.

8. Decisions regarding new technology adoption are made within current policy frameworks.

Staff/faculty development in various areas related to online learning is also critical to ensuring quality. Ultimately, it is the faculty who must ensure that their course design and teaching and learning methods ensure quality online provision.[19] Different universities adopt different approaches for staff development in support of online learning. For example, at the University of South Africa (UNISA) – the largest open distance learning institution in Africa – a unit dedicated to curriculum and learning development provides continuing professional learning opportunities for lecturers in various areas, and is also responsible for quality assurance at the institution.[20]

The following key areas for professional development and support should be considered in preparing of faculty for online learning:

- Developing methodologies to promote interactive learning experiences
- Developing instructional materials
- Learning about new technological development, as well as the use of a mix of technologies
- Marketing of online courses
- Ensuring the availability of adequate assistance for facilitation of learning
- Strategies for evaluation of the process and outcomes of online learning
- Education about specific technical processes (such as integrating multimedia applications, for example)
- Opportunities for peer support, feedback, and mentoring
- Support in management of workload, particularly related to course design
- Ensuring that faculty have a working knowledge of the range of student support services offered
- Keeping faculty informed about important institutional policies and administrative procedures[21]

5 What institutional structures and staffing resources do you need for ensuring quality in online learning?

Successful quality assurance requires effective and efficient institutional structures.[22] However, you should not assume that creating quality assurance structures (such as we describe below) automatically improves quality. Institutions must distinguish between quality assurance procedures, which can easily become compliance focused, and real efforts to enhance quality.[23] For example, evaluating a course, though required, is not sufficient. Quality enhancement will only take place when the lessons from evaluation are reflected in the next offering of the course. Institutional quality assurance structures and processes are important, but beware of making them an exercise in compliance for accountability, rather than a process of learning and self-improvement that really improves quality.[24]

Notwithstanding this tension between compliance/accountability and self-improvement/innovation, you need some institutional quality assurance structures. Given the diversity of institutional involvement in online learning, we cannot prescribe an ideal quality assurance structure. There are, however, lessons that can be learned about institutional structures from experiences and quality audits that have been conducted around the world.[26] Often institutions have an office/unit/section/division/department (hereafter 'office') dedicated to quality assurance.[27] Its size and scope will differ depending on the institution. Such offices usually coordinate quality audits, programme accreditation, departmental reviews, and other peer review activities.[28] Sometimes the quality office is also responsible for course evaluations, benchmarking research, institutional monitoring, and calculating key performance indicators (KPIs) to inform quality work. The number of staff members dedicated to quality assurance will differ, but some people must focus on this task.

Committee structures at institutional, faculty and/or department level usually underpin the work of the quality

office. These ensure institutional participation, buy-in and, ultimately, quality improvement.[29] These committees should have clearly defined responsibilities and delegations, decision-making powers appropriate to the level at which they operate, and have clear procedures for documenting processes and outcomes.[30] Without decision-making powers, quality committees can easily become another layer of administration within a compliance culture. To be effective, staff members serving on quality committees should have access to training in the areas of quality enhancement and assurance. The work of the quality assurance office and the institutional quality committees should feed into institutional processes in teaching and learning, course and materials production, and staff development in order to build a quality culture across the institution.[31]

6 What resources should you allocate to developing quality online learning?

If institutions do not employ cost-effective approaches to online learning, they will struggle to achieve its full potential. Cost effectiveness means establishing and maintaining the key processes needed to sustain online learning.[32] Inadequate resourcing and financial management will compromise the quality of online learning.[33]

Online learning has five main cost drivers: planning, design and development, delivery, maintenance, and overheads.[34] Institutions that make online learning a mission priority need to factor in a significant overhead cost of technology infrastructure, possibly arranged in partnership (see FAQ 2). Sound systems for the storage, delivery, and access of online courses are a critical element of quality.[35] Remember, however, that this cost, though significant, will likely be substantially less than that of maintaining a campus.[36] Nevertheless, staff time and expertise is a large cost driver, but also a key resource for quality online learning. The transition from a completely face-to-face teaching environment to more online learning requires a shift in use of staff time. Less time will be spent on course presentation and much more on design and planning.[37] Investment in prior and ongoing staff development is critical.

You should base decisions about resource allocation for the development of quality online learning on sound business plans and cost estimates. The Ontario Online Learning Portal for Faculty and Instructors provides a useful list of the top ten cost drivers (resource needs) for online learning. These are:

- The number of hours required for course development and preparation
- The number of hours required to teach a course
- The number of students in a course
- The ratio of instructors to students ('class' size)
- The pay scale of instructors (in particular, ratio of tenured to adjunct faculty)
- Method of course design, development and delivery (e.g. 'Lone Rangers' vs. team work)
- The pedagogy used (e.g. recorded lecturers, constructivist or objectivist approach)
- The choice of technology for delivery (e.g. lecture capture, learning management system or LMS)
- The assessment of the course and its outcomes
- Overhead costs (institutional administrative costs, network costs, etc.)[38]

7 How can students judge the quality of online courses?

The student perspective is an important aspect of quality assurance for online learning.[39] Online learning should not be something that is simply 'delivered' to a passive student. Instead, quality online learning is constructed through 'a process of co-production between the learner and the learning environment'.[40] Two questions usually guide students' assessment of quality: (1) which are the most important features to consider when looking for quality online learning; and (2) which online learning providers offer the best performance at a reasonable price.[41] In making their quality judgements, students should consider the dimensions of quality in online learning in Table 1. Quality factors that students themselves identify as important include:

- Provision of tutorial support using a diverse range of media for communication
- The manner in which cooperation and communication take place in the course
- Technical standards (where technical standards are not met, students tend to have a very negative experience of the course)
- Cost-value assessment and expectations that students bring to a course (students need to perceive that the learning experience and benefits are adequate in terms of the costs of the online course)
- Transparency and availability of information about the course and the institution offering the course
- The structure of the course and flexibility provided
- The type of 'didactical setting', which includes factors such as learning outcomes, content (including background materials), teaching and learning methodologies, and online materials.[42]

8 How can instructional design, learning materials, and course presentation contribute to quality online learning?

High-quality online courses are intentionally designed for an online learning environment by skilled content and instructional design professionals. Good instructional design will reflect best practices and research on teaching and learning. It covers decisions about the overall learning approach, choice of instructional media, the clustering and sequencing of learning, and the range of exercises, activities, and assessments included in the course.[43] Put another way, 'instructional design is the process through which an educator determines the best teaching methods for specific learners in a specific context, attempting to obtain a specific goal.'[44] Good instructional design should be invisible to the student. This means that 'an online course based on sound design principles should be built with instructional components seamlessly woven together to engage the student in learning while transferring intended context via prescribed instructional strategies.'[45] The QM criteria shown in Table 1 provide some examples of good practice in instructional design. The following four key design principles, presented as a guide to faculty by the Southern Poly State University[46] summarize four main areas of instructional design:

- Consistent layout and design;
- Clear organisation and presentation of information;
- Consistent and easy-to-use navigation; and
- Aesthetically pleasing design and graphics.[47]

Online course materials should combine sound instructional design with high quality content. Since development of quality online learning materials requires a range of skills, materials development teams often comprise faculty or subject matter experts, instructional designers, curriculum specialists, technology specialists,

assessment specialists, and a language editor. To ensure effective course design and development, it is important to map out a course and materials development workflow and review process.[48] Most institutions that design and create online course materials have identified specific criteria and/or checklists that can be used to ensure quality at various stages of the materials development process.[49]

Quality online learning materials should be regularly updated to reflect new developments in the field in question. One approach is to integrate a range of interesting sources from around the world available as Open Educational Resources (OER). OER are openly licensed educational resources that can either be incorporated within learning online materials as they are developed or used 'as is' for an online course.[50] In the African context, OER Africa[51] provides access to a range of useful OER in the areas of agriculture, health, teacher education, and foundation programmes. The Indira Gandhi National Open University (IGNOU) in India provides a platform – called FlexiLearn – where a range of free learning resources are integrated with a learning management system to provide unique learning experiences 'for anyone who wants to learn'.[52] OER are of particular value where resources are limited and the development of totally new content is too costly. As always, it is up to the institution offering the online course, through its programme/course coordinators and individual academics, to assure the quality of OER it uses. The relevance and appropriateness of OER used, as well as how they are integrated into the course, are crucial factors.[53] It is also important to keep an eye on student workload and avoid confusing learners with a profusion of optional resources.

9 How can the structure of the virtual environment facilitate quality online learning?

Virtual learning environments (VLEs) consist of a wide range of tools, including: search engines, internet voice communication, instant messaging, chat groups, emails, RSS feeds, blogs, social networking platforms, online video conferencing platforms, learner management systems such as Moodle (**https://moodle.org/**), Sakai (**http://www.sakaiproject.org/**), Canvas (**www.instructure.com**) and BlackBoard (**www.blackboard.com**), and e-portfolio programmes such as Mahara (**http://mahara.org**), Learner Journey (**http://www.learnerjourney. com/**), foliofor.me (**http://foliofor.me**), and ePortaro (**www.eportaro.com**), as well as in-house e-portfolio systems designed by specific universities (for example, the National University of Singapore developed a purpose built system called SELF – Student Electronic Learning Folio).[54] In parallel, the gaming industry has been working on virtual environments for some time, and the educational potential of gaming is now increasingly clear.[55]

Virtual learning environments present many possibilities but also potential pitfalls, particularly when trying to transfer traditional teaching methods to virtual environments.[56] Although they have great potential, virtual learning environments are often not used as innovatively as they might be.[57] Designers of online learning must select the components of the virtual learning environment carefully, bearing in mind the needs and life situations of the students.[58] For example, older lifelong learners may need additional support in a virtual learning environment.[59] However, age is not a barrier to online learning, for research shows that all students can learn well through technology; there is really no 'digital generation'.[60]

In sum, a quality virtual learning environment is firmly based on the pedagogical needs of the course and its learners, is reliable and robust, is aligned with the technical infrastructure of the institution, and is regularly subjected to internal evaluations, updating and improvements as needed.[61]

10   What do web design and web usability factors contribute to quality?

The World Wide Web has features that are particularly useful for online learning. Examples include: the capacity to share rich media files such as images, complex diagrams, audio and video; the range of tools to support interaction and communication from email to bandwidth intensive forms, such as web-enabled video and teleconferencing; and the non-linearity of the platform-independent standards of hypertext markup language (HTML) and its successors, which provide a means for learners to create their own learning pathways though online learning materials.[62] Once again, however, the mere availability of these features does not mean that they are always deployed in an effective and user-friendly way. Some online courses are just 'HTML page-turners', where traditional linear methods of transmitting content are simply moved over to web technologies.[63] So, what web design and usability factors should be considered in assessing quality in online learning?

The concept of usability originated in the discipline of Human-Computer-Interaction, which focuses on understanding how to make computing systems easy to use. Web usability refers to attributes such as learnability, memorability, efficiency, handling of user errors, and user satisfaction.[64] Researchers at the UK Open University have developed the concept of 'pedagogical usability',[65] which is of special value for gauging the impact of web usability on the quality of online learning. Box 2 summarises key elements of pedagogical usability, which assumes that there are several layers of usability underlying quality online learning. These layers of usability are mutually dependent. For analytical purposes it is helpful to separate these layers of usability, but they should be applied in an integrated fashion.

Mutually dependent levels of 'Pedagogic Usability'
presented verbatim from Kukulaska-Hulme & Shield, 2004

- Context specific usability relates to the requirements of particular disciplines and courses. Each course has its own needs and intended outcomes which make it different from other courses.

- Academic usability deals with educational issues, such as the pedagogical strategy, and the place of websites in relation to other course materials. Expected study behaviour also comes into play. The specifics of e-learning are considered at this level.

- General usability issues are common to most websites and include aspects such as clear navigation and accessibility for users with special needs. They may reflect general HCI concerns or aspects that are specific to the web.

- Technical usability addresses issues such as broken links, server reliability, download times, appropriateness of plug-ins, and accurate HTML. This is also known as the 'functional' usability level.

11 How can you use media (video, graphics, audio, animation and simulation) to enhance quality in online learning?

Using different media in online learning, if done intentionally through the instructional design and not as an afterthought, can add value by increasing the variety of learning strategies employed, so catering more effectively to multiple learning styles.[66] Using multimedia materials can improve both the online learning experience and students' ability to retain information. Further, video and audio materials can help to 'bring a course alive' by invoking both visual and auditory senses in the learning process.[67] With the rapid growth in freely available online video and audio content, for example, YouTube (**www.youtube.com**), iTunes University (where most major universities provide various forms of learning content), OpenLearn (**www.open.edu/openlearn/**), TED Talks (**www.ted.com/talks**), Khan Academy (**http://www.khanacademy.org/**), and many others, educators can now incorporate the voices of leading experts in their online courses. Institutions are also making increasing use of podcasts to bring online learners 'into' the college classroom. However, students sometimes seek podcasts for their entertainment value rather than their learning value, so they should be short, engaging, and carefully integrated into the learning objectives and through the instructional design of the course.[68] Audio lectures provide a learning benefit when students listen to them more than once, taking notes as they would in a face-to-face lecture. When students engage with a podcast lecture like this they perform better than students who sit in class but do not have the podcast.[69]

The value of simulations and/or role-playing environments in enhancing learning is increasingly clear and is greatest when a simulation is part of the overall instructional design.[70] Simulations can serve various purposes. They have been effective for procedural learning (e.g. medical procedures), for providing complex virtual contexts for problem-based learning, and for facilitating discovery-based learning. Used effectively, simulations can 'site learners in a professional context, where there are aggregates of transactions, perhaps multiple solution paths, and where learners' work is, as it will be in the workplace, distributed between tools, colleagues, resources, anticipated and unanticipated problems and individual constructions of knowledge and experience.'[71] One study showed that when students used simulated equipment (direct current circuitry) for practical work in physics they outperformed, both conceptually and practically, students who completed the same task in a physical laboratory.[72] Simulation has important quality implications for distance education, where access to physical laboratories and other practical learning experiences is not always possible.

In sum, multimedia resources can enhance quality in online learning most effectively when used purposefully as part of the instructional design of the course. Using them as an afterthought or for their entertainment value is unlikely to improve the quality of learning.

12 What online assessment and assignment methodologies promote quality learning?

Assessment is a key element of curriculum design that is fundamental to the learning process. Assessment methods are of prime pedagogical importance because they largely determine how students approach their studies.[73] Assessment should be planned and aligned with the learning outcomes within the instructional design process (See FAQs 6 and 8) to enhance the quality of online learning. Assessment can be done by the instructor, by the student, by peers, or by an external body. Online learning environments offer increased flexibility for assessment, and can be used to encourage the development of creativity, critical thinking and in-depth subject matter knowledge – each of which is essential for quality learning. Many different assessment techniques can be used in an online learning environment. They can be categorized broadly in terms of timing (synchronous or asynchronous) and in terms of location (formal, semi-formal, informal

settings). The Swedish National Agency for Higher Education (2008) has summarized the different ways in which online assessment can be organized, with an analysis of their pros and cons.

Table 2 *Different forms of online learning assessment organization*[74]

Assessment Location	Benefits	Drawbacks
Formal*	Easy identification	Inflexible in terms of time and location, additional costs
Semi-formal** synchronous	Easy identification, moderate flexibility of location	Inflexible in terms of time, additional costs
Semi-formal asynchronous	Easy identification, moderate flexibility of time and location	Additional costs
Informal*** synchronous	Highly flexibility of location, low costs for students, no travel, accommodation, etc. needed	Inflexible in terms of time, moderate identification concerns
Informal asynchronous	High flexibility of time and location. Low costs for students, no travel, accommodation, etc. needed	High identification concerns. But, e.g. internet banking services have well-developed systems for securing identify in this mode

*On-Campus

**Localities not governed by the university but defined as learning centres, embassies etc.

***Can be anywhere, only restricted by technical requirements such as computer and/or internet access.

Many different types of assessment can be used online. A few are listed below, with links to additional reading.[75] They are:

- Written assignments
- Participation in online discussions
- Essays
- Online quizzes
- Multiple choice questions to test understanding (formative) or as a test (summative)
- Collaborative assignment work
- Debates
- Experiential activities such as role play and simulation
- Learning portfolios

13 How do you ensure examination security?

Examination or assessment security and authenticity is an important consideration in quality online learning. Those who are sceptical of the possibilities of online learning often raise it as an issue. We noted the value that online environments offer for flexibility in assessment (FAQ 9), but if not managed well, this flexibility can create problems of security and authentication. Remember, though, that issues of identification – in the context of assignments – are not new in higher education. Assignments are usually completed outside class, raising similar challenges of being sure that students did their own assignments. Invigilation (proctoring) and the verification of student identity is also common when students sit examinations, either at contact institutions or learning centres that work in partnership with distance providers.

Many technologies can ensure examination security in online settings. These include, for example, web cameras, computer identification, and finger scans (biometric authentication).[76] Depending on the context, written examinations can also be verified by live oral examinations or dialogues using video conferencing software. New examination security software also provides the means to 'lock down' the devices being used when taking examinations, thus preventing access to non-examination materials.[77]

Plagiarism in online assignments (as well as within contact teaching) is becoming an increasing academic concern. Plagiarism is the intentional copying of the work of others, combined with the lack (often unintentional) of adequate acknowledgement and referencing. Various software programmes can detect plagiarism (see, for example, **http://turnitin.com**). While detection of plagiarism is important, it is better to prevent the practice rather than merely having checks in place to detect it. Raising student awareness of the issue is key.[78] Online assessments can be designed in a manner that helps to reduce plagiarism. This can be done by varying the nature and frequency ofassignments, dividing assignments into their component parts, requiring a range of deliverable products,and insisting on evidence of research and proper citation of sources.[79]

14 What strategies can you deploy for interaction and student community building?

'Communication and interaction are essential elements within learning'.[80] Online learning takes place outside of a common physical space, so specific strategies are needed to encourage interaction and community building. Whether participation in learning communities should be required or optional remains an active debate but we shall not tackle it here.[81] Instead, we focus on strategies for supporting interaction and community building, whether participation is compulsory or not. Various factors can influence the type of interaction and learning community in a given online learning environment. They include the discipline, level of the course, the preference and style of the instructor, types of students, and the purpose that interaction or community engagement is intended to serve.[82] Examples of activities include asynchronous online discussions,[83] chat rooms, collaborative projects, and learning teams. Social networking systems such as Facebook (**www.facebook.com**) and Twitter (**https://twitter.com**) as well as blogs and wikis and Google Docs can be used effectively to support interaction and community building.[84] Strategies for supporting successful interaction and collaborative groups in online courses are summarized in Box 3 below.[85]

Strategies for group learning activities

1. **Create transparency of expectations and purpose:** Specific information about how and why the collaborative or interactive activity is included should be provided and ensuring students are familiar with the collaborative tool being used should be done at the outset.

2. **Provide clear instructions:** One cannot assume that students will know how (and why) to interact or collaborate to form a learning community. Clear instructions, outlines, and due dates need to be provided as the basis from which collaborative work can start. Sufficient time is needed to build relationships among students.

3. **Form small groups:** In an online learning context, research indicates that smaller groups – usually three to five students – are more effective than larger groups were some students can 'lurk in the background and not contribute.'

4. **Monitor and support:** The online instructor should be available to support collaborative work and to participate in the interaction from time to time, and as needed by a particular group or emerging learning community.

5. **Include etiquette guidelines:** It should not be assumed that students participating in an online course or learning environment will necessarily share the same understanding of etiquette and how to work together. For this reason it is important for the instructor to map out initial guidelines for interaction. The different between cooperative work (where individual students each submit their own contribution) and collaborative work (where students work together as a team to produce one prod-uct) should be explained.

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15 How can teaching and facilitation contribute to ensuring quality?

Although there is a common misperception that online learning takes place without teaching and/or facilitation, the instructor or online learning facilitator in fact plays a crucial role in the quality of online learning.[86] However, a good face-to-face teacher will not necessarily be a good online educator or facilitator. Professional development for teaching and facilitation in the online context is needed to underpin quality.[87] Several guides, guidelines, tips and other information are available to support the online educator.[88] Some examples are presented below.

'[F]acilitating online learning is like any other situation where you work with human beings. It is important to share your warmth, to be curious about who your students are and how they think, to set a clear course, to provide encouragement, to be there.' Online learning facilitators are required to take on multiple roles, such as planning (organising the course), modelling effective online behaviour, coaching and encouraging individuals and creating teams, taking the role of instructor and being willing to learn, and being a good communicator.[89]

The University of Illinois notes that students should expect the following of their online learning facilitator:

- The facilitator should create a learning environment that makes use of life, work and educational experiences as part of creating a meaningful learning process.
- The facilitator should present the online curriculum and material in a manner that allows the student to translate theory into a practice.
- All students should be provided with multiple opportunities to develop and improve their performance throughout the course.
- Reasonable accommodation (flexibility) for students' context and needs should be made.
- Facilitators should listen to feedback provided by students.
- The facilitator should be concerned about and committed to students' success.
- The facilitator should keep students up to date regarding their progress and performance on assessments.
- Timely and quality feedback should be provided to students based on their contributions to learning activities and collaborative tasks and discussions.
- Students should not expect lecturing in the online environment.
- Students should not be required to complete tests of memorisation. Case analysis, problem solving and interactive activities are preferable.
- All students should be treated politely and with respect.
- The facilitator should be online every day or at least five out of seven days a week.[90]

16 What support should students receive?

Students entering a contact course require information about the institution, the course, the library, computing resources, tutorials and so on. Online learners do too, and they need information to help them assess their readiness for online learning. This means giving out concrete information before they embark on the course so that students can make informed decisions about this mode of study.[91] You can access a useful example of a short quiz designed to help students assess whether they are ready for online learning at Washington Online, the online learning website of the Washington State Board for Community and Technical Colleges.[92] Once enrolled, online learning students require support in various areas. The Open University of

Hong Kong provides an online support programme (called 'Learning OU Style') that takes students through a series of steps in preparation for online learning. These steps include: getting set up for study, becoming a successful student, study skills, and a sample unit that students can work through to 'get a taste of open learning'.[93] It is important that they know what support they can expect, and how to access it.[94] The table below summarises key areas in which student support for quality online learning is needed.

Table 3 *Student support for online learning*[95]

Area of Support	Description
Expectations	Service standards should be clear and easily available to online learners.
Information and administrative support	Experience shows that students who opt to study online commonly expect to be able to complete administrative processes, such as registration for example, online. It is recommended that regular student satisfaction surveys are conducted to ensure that administrative requirements are not a barrier to learning. Portals that are designed to be personalised tend to enhance the learner's experience.
Technological support	Students need to know what technology requirements are needed prior to registration. Even so, students are likely to need ongoing technological support and this support should be clear and readily available. Information centres, helpdesks and call centres are commonly used to provide technological support.
Study skills assistance	Sometimes online learners are adults returning to learning after sometime away, while open learning courses might encounter students with little prior experience of post-school learning, or students might have not have experienced online learning before. For this reason, support regarding the specific types of learning and study skills needed in an online environment is needed. This support includes, for example, time management and study schedules, assistance with balancing educational and other life demands, tools to provide peer assistance and collaboration, assistance in working with digital and online learning materials, information about plagiarism and how it can be avoided, and assistance with the use of online library searches and other means of finding information.
Online educational counselling	Educational and career counselling can be provided in a web environment. Well-prepared online resources (usually asynchronous) can assist students who might not have access to a counsellor.
Ongoing programme advising	Support in terms of learning pathway organisation and how best to spread coursework over study years depending on the context of the specific learner is important. Advisors should help online learners to understand program requirements and how prior learning might match those requirements or how completely learning can be transferred when moving into a new or different learning program.
Digital library	The educational institution's online library should be easily found among the institution's web pages, should provide tutorials to guide new students, and access to personal assistance should be provided, if needed.
Access for students with disabilities	In an online context services such as alternative formats for learning materials, advice about assistive technologies, referrals as needed, and learning accommodations (within the bounds of regulations and policy) should be made available to online students with disabilities.

Annotated Reading List: Benchmarks for Quality Online Learning

Asian Association of Open Universities (AAOU) (no date). Quality Assurance Framework. http://www.aaou.org/images/files/AAOU%20Quality%20Assurance%20Framework.pdf
The AAOU quality assurance framework specifies benchmarks of best practice in the areas of policy and planning; internal management; learners and learners' profiles; infrastructure, media and learning resources; learner assessment and evaluation; research and community services; human resources; learner support; program design and curriculum development; and course design and development.

Australasian Council on Open, Distance and e-Learning (2007). ACODE benchmarks for e-learning in universities and guidelines for use. http://www.acode.edu.au/resources/acodebmguideline0607.pdf
The following benchmarks are highlighted by ACODE: institutional policy and governance for technology supported learning and teaching; planning for, and quality improvement of the integration of technologies for learning and teaching; information technology infrastructure to support learning and teaching; pedagogical application of information and communication technology; professional/staff development for the effective use of technologies for learning and teaching; staff support for the use of technologies for learning and teaching; student training for the effective use of technologies for learning; and student support for the use of technologies for learning.

Bourne, J., & Moore, J.C (2003). Elements of Quality Online Education: Practice and Direction. USA: The Sloane Consortium. http://sloanconsortium.org/publications/books/eqoe4summary.pdf
The vision of quality presented by the Sloan Consortium in this report highlights 5 elements, namely: learning effectiveness, cost effectiveness, access, faculty satisfaction, and student satisfaction.

CHEA (2002). Accreditation and Assuring Quality in Distance Learning. CHEA Monograph Series 2002, Number 1. Washington DC: Council for Higher Education Accreditation http://www.chea.org/pdf/mono_1_accred_distance_02.pdf
The CHEA identifies 7 key areas for consideration in accreditation and quality assurance processes for distance learning: institutional mission, institutional structure, institutional resources, curriculum and instruction, faculty support, student support, and student learning outcomes.

Frydenberg (2002). Quality Standards in e-learning: A matrix of analysis. The International Journal of Research in Open and Distance Learning, 3(2). http://www.irrodl.org/index.php/irrodl/article/view/109/189.
Frydenberg summarizes nine quality benchmarks: institutional commitment, technology, student services, instructional design and course development, instruction and instructors, delivery, finances, regulatory and legal compliance, and evaluation.

Grifoll, J., Huertas, E., Prades., A., Rodríguez, S., Rubin, Y., Mulder, F and Ossiannilsson, E (2009). Quality Assurance of E-learning. Helsinki: European Association for Quality Assurance in Higher Education. http://www.enqa.eu/files/ENQA_wr_14.pdf
This reports presents an overview of the discussions and challenges identified at a quality assurance workshop held in Sweden. Amongst others, the report presents the National Agency for Higher Education (NAHE) in Sweden's approach to quality assurance which emphasises the importance of a holistic approach and that eLearning needs to be integrated in overall quality assurance processes. Ten criteria have been formulated and all ten need to be taken into consideration in a holistic perspective (NAHE, 2008). The ten criteria are: material and content, structure and virtual environment, cooperation and interactivity, communication, student assessment, flexibility and adaptability, support (student and staff), staff qualifications and experience, vision and institutional leadership, and resource allocation.

Institute for Higher Education Policy (2000). Quality on the Line: Benchmarks for Success in Internet-based Distance Education. http://defiant.corban.edu/jjohnson/Pages/Teaching/qualityonline.pdf
With support from Blackboard and National Education Association, these authors developed 24 common benchmarks

for high quality online education in seven categories, namely: institutional support; course development; teaching/learning; course structure, student support, faculty support, and evaluation and assessment.

Jung, I (2010). The dimensions of e-learning quality: from learner's perspective. Education Tech Research Development. http://taalim.ir/files/fulltext%20(2).pdf
This paper discussed online learning quality criteria in the South Korea context. The Ministry of Education, Science and Technology (MEST) has developed 95 detailed quality criteria for cyber universities in six domains: educational planning (clear mission and its integration in institutional policies), instruction (instructional design, content development, delivery and evaluation), human resources (students, academic faculty and administrative staff), physical resources (facilities, hardware and software/network system), management and administration, and educational results (stakeholder satisfaction and social recognition). Against this context, the paper presents the results of quality dimensions perceived by adult learners. The following seven dimensions were identified: interaction, staff support, institutional quality assurance mechanisms, institutional credibility, learner support, information and publicity, and learning tasks.

LIfIA and ElfEL (2004). Open eQuality Learning Standards. www.futured.com/documents/OeQLsMay2004_000.pdf
Canada's Open eQuality Learning Standards reflect not only providers' perspectives but also learners' perceptions of e-learning quality. 22 areas for assessing quality across three dimensions, were cited as being of special interest to learners. The three dimensions are: learning skills acquired, value of the credits gained, and return on investment.

McNaught, C (2011). Quality Assurance for Online Courses: From Policy to Process to Improvement. http://cms.ascilite.org.au/conferences/melbourne01/pdf/papers/mcnaughtc.pdf.
This study identified benchmarks in seven areas considered essential for ensuring quality in online education in the context of higher education, namely: clear planning, robust and reliable infrastructure, good support systems for staff and students (including training and written information), good channels of communication between staff and students, regular feedback to students on their learning, clear standards for courseware development, and ongoing evaluation with a strong student input.

Oliver, R (2003). Exploring benchmarks and standards for assuring quality online teaching and learning in higher education. Proceedings of the 16th Open and Distance Learning Association of Australia Biennial Forum, Canberra Australia. http://ro.ecu.edu.au/cgi/viewcontent.cgi?article=4278&context=ecuworks.
In this paper, Oliver provides the following summary benchmarking statements for a number of quality indicators for teaching and learning: learning and teaching plan, course establishment processes, scholarly teaching, teaching environment, effective academic review processes, manual for Australian universities, fitness of courses, student progress ratio, first to second year retention trends, equity quantitative success, and student satisfaction.

Pape, L., & Wicks, M (2009). National Standards for Quality Online Courses. International Association (iNACOL) for K-12 Online Learning. http://gsehd.gwu.edu/documents/gsehd/resources/gwuohs-onlineresources/standardslegislation/inacol_nationalstandardsonlineprograms-102009.pdf
iNACOL focuses on establishing standards around the following components of online courses: content, instructional design, student assessment, technology, and course evaluation and support. In addition to these standards focused specifically on online courses, iNACOL has also produced standards for online teaching and online programs. For more information see: http://www.inacol.org/resources/publications/national-quality-standards/

Pawlowski, J.M (2007). The Quality Adaptation Module: Adaptation of the Quality Standard ISO-IEC 19796-1 for Learning, Education and Training. Educational Technology and Society, 10(2), 3-16. www.ifets.info/journals/10_2/2.pdf
The International Organization for Standardization (ISO) has developed 'a framework to describe, compare, analyze, and implement quality management and QA approaches' in the use of information technology in learning, education and training which includes seven processes for quality development: establishment of requirements (i.e., defining objectives), general conditions (i.e., analyses of external context, personnel resources and target group), design (i.e., design of learning content, didactics and activities), production (i.e., development of content), introduction (i.e., testing, adaptation and release of learning resources), implementation (i.e., administration, activities and review of

competence level), and evaluation/optimization. In this paper, Pawlowski presents a methodology and assessment of the ISO/IEC criteria in the context of education. For further information, see http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=33934

Quality Assurance Agency for Higher Education (QAA) (2006). Outcomes from institutional audit Institutions' support for e-learning. UK: QAA. http://www.qaa.ac.uk/Publications/InformationAndGuidance/Documents/eLearning.pdf
In the UK context, the QAA has developed guidelines on the quality assurance of distance learning. Features of good practice are identified in connection with e-learning and distance learning.

Quality Matters (QM) Rubric Standards 2011-2013 edition. www.qmprogram.org.
The Quality Matters Rubric is a set of eight standards, with 41 specific indicators that can be used to evaluate quality of the design of online and blended learning courses. The rubric emphases the alignment of learning objectives, assessment and measurement, instructional materials, learner interaction and engagement, and course technology in order to ensure students achieve the specified learning outcomes.

Shattuck, K., & Diehl, W.C (2011). Scholarly research that informed and supported the development of the 2011-2013 Quality Matters in Higher Education Rubric. www.qmprogram.org.
This document presents a very useful summary of key literature of relevance to quality in online learning. For each source listed a short summary of the main findings is presented.

Swedish National Agency for Higher Education (2008). E-learning quality. Aspects and criteria for evaluation of e-learning in higher education. Report 2008:11 R. http://www.hsv.se/download/18.8f0e4c9119e2b4a60c800028057/0811R.pdf
This report draws on the work of Swedish National Agency for Higher Education (HSV) in the area of quality in distance and e-learning since 2006. Based on an extensive review of existing models of e-learning quality, the HSV offers a model for quality assessment of e-learning (ELQ) in E-Learning Quality which is made up of 10 quality dimensions: material/content, structure/virtual environment, communication, cooperation and interactivity, student assessment, flexibility and adaptability, support (for students and staff), staff qualifications and experience, vision and institutional leadership, and resource allocation.

Ubachs, G (2009). ENQA Workshop. Quality Assurance of E-learning. European Association of Distance Teaching Universities (EADTU). http://www.enqa.eu/files/George%20Ubachs%20E-xcellence%20+%20Sigtuna.pdf
EADTU has developed the E-xcellence manual, which is described in this presentation. The manual offers a self-assessment tool which contains 33 benchmarks in six categories, including: strategic management, curriculum design, course design, course delivery, staff support, and student support. For additional information or to access the E-xcellence manual see http://e-xcellencelabel.eadtu.eu/.

Welch, T., & Reed, Y (Eds) (no date). Designing and Delivering Distance Educations: Quality Criteria and Case Studies from South Africa. Johannesburg: National Association of Distance Education Organizations of South Africa (NADEOSA). http://www.nadeosa.org.za/resources/reports/NADEOSA%20QC%20Section%201.pdf.
This comprehensive guide, that also includes useful case studies from South Africa, presents 212 individual quality elements in thirteen criteria: policy and planning, learners, program development, course design, course materials, assessment, learner support, human resource strategy, management and administration, collaborative relationships, quality assurance, information dissemination, and results.

Western Cooperative for Education Telecommunications (no date). Best Practices for Electronically Offered Degree and Certificate Programs.
http://www.niu.edu/assessment/manual/_docs/Best%20Practices.pdf
This best practice guide was developed by the eight regional accrediting commissions in the USA, and includes 29 best practices in five quality components, namely: institutional context and commitment, curriculum and instruction, faculty support, student support, and evaluation and assessment.

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