QUALITY GUIDELINES FOR ONLINE COURSES: THE DEVELOPMENT OF AN INSTRUMENT TO AUDIT ONLINE UNITS

Herrington, A., Herrington, J., Oliver, R., Stoney, S. & Willis, J. (2001). Quality guidelines for online courses: The development of an instrument to audit online units. In (G. Kennedy, M. Keppell, C. McNaught & T. Petrovic (Eds.) *Meeting at the crossroads: Proceedings of ASCILITE 2001*, (pp 263-270). Melbourne: The University of Melbourne.

Anthony Herrington
School of Education
Edith Cowan University, Australia
a.herrington@ecu.edu.au

Jan Herrington
School of Communications and Multimedia
Edith Cowan University, Australia
j.herrington@ecu.edu.au

Ron Oliver
School of Communications and Multimedia
Edith Cowan University, Australia
r.oliver@ecu.edu.au

Sue Stoney
School of Management Information Systems
Edith Cowan University, Australia
s.stoney@ecu.edu.au
&

Jackie Willis
Resource Development Centre
Edith Cowan University, Australia
jackie.willis@ecu.edu.au

Abstract

Institutional, national and global pressures demand that universities address issues of quality in teaching and learning. The maintenance of existing courses and the imperative to offer new courses online necessitates the development of measures and guidelines that can inform instructional designers and academics. A number of quality guidelines have been produced that reflect different contexts and purposes. Some focus on school learning, some on pedagogy alone and some that reflect the designs of particular courseware management software. This paper sets out to describe a workable set of guidelines for academic and support staff in the development and benchmarking of online course quality across the institution that emphasised current approaches to teaching and learning in higher education supported by appropriate content and delivery strategies.

Keywords

Quality, online, guidelines, teaching and learning

Introduction

> Developments in information and communications technology also fundamentally change the way we think about inputs and quality. A focus on staff/students ratios and the number of volumes in a library is being replaced by a focus on the quality of educational opportunities and outcomes rather than the magnitude of inputs (Kemp, 1999).

We have reached a point in the uptake of technologies in higher education where the notion of quality is becoming an important and overriding issue. Many universities are now offering courses and programs based on online delivery modes and are starting to question aspects of these forms of teaching and learning. Questions that are being asked include:

- Is online learning as effective as face-to-face?
- Are online courses as good as they could be?
- What is the best way to deliver online courses? and
- By what means can we measure quality online learning?

All these questions are raised frequently in the literature and more often than not the answers tend to suggest that quality is often compromised in online learning settings (e.g., Noble, 1997, Stoll, 1995; Nieuwenhuizen, 1997).

As well as institutional concerns there are national and global pressures that demand a focus on quality. Comparisons between the extent and nature of online university course are gathering pace. In May 2001, the *Department of Education, Training and Youth Affairs* (DETYA) surveyed all universities seeking information on the extent to which they provided web-based courses and units, online administration and online support services. Non-government initiatives also see a profit in making such comparisons, such as the *Good Universities Guide* (e.g., Ashenden & Milligan, 2000) through its publication of students' responses to the *Course Experience Questionnaire*. The establishment of the *Australian Universities Quality Agency* will, beginning in 2002, audit all quality assurance aspects of universities once every five years. The process will include the 'monitoring, reviewing, and providing reports on quality assurance arrangements in self accrediting institutions, and on processes and procedures of State/Territory accreditation authorities, and on the impact of those processes on quality of programs' (Kemp, 1999).

Globally, the recent strategic partnership formed between ECU and the distance education broker *Scottish Knowledge* has meant a rapid entry into a competitive global marketplace for quality online materials. Aggressive competition from overseas providers range from courses being offered by 'all star' casts (Reeves, 2001; Radford, 1997) to MIT's recent decision to offer its online courseware free of charge (Krazit, 2001).

So within this context the authors of this paper set about constructing a set of guidelines that would measure the quality of existing online resources and guide the development of new ones.

Quality guidelines

There is a plethora of literature that describes the attributes of effective learning settings and in particular, the effectiveness of online settings. Many papers have been written describing the attributes of effective learning in higher education (e.g., Ramsden, 1992; Chickering & Ehrmann, 1994) and effective learning in online learning settings (e.g., Burbules, 2000; Carr-Chellman & Duschatel, 2000; Reeves & Reeves, 1997). At the same time, we frequently find papers that describe evaluation instruments and mechanisms that enable practitioners to determine the likely effectiveness of particular online courses (e.g., Beck, 1997; Reeves & Laffey, 1999). The content of these papers are often very similar, but the papers differ in the ways in which they contextualise their information and seek to use it.

Online learning evaluation instruments have been developed to serve a variety of functions. For example:

- To explore the potential effectiveness of online courses;
- To compare online courses;
- As a formative tool to guide and inform the development of online learning materials;
- For summative purposes associated with establishing the quality of existing materials;

While the determination of the quality of online materials will ostensibly use the same principles as most evaluation instruments, the purpose at Edith Cowan University was to provide a measure of the quality of existing materials and to provide a guide in the development of new units. To achieve this we needed to discover or build an instrument that identified the strengths and weaknesses of online learning materials and reported these elements in an efficient and succinct fashion.

Different writers argue that effective online learning materials must display a number of critical elements. For example, Vaile (1999) argues that there are 6 categories that need to form the basis of an evaluation of the effectiveness of an online learning in K-12 school settings:

- *Learning design:* the pedagogy (including creative thinking, learning modalities and styles, and the particular learning approaches)
- *Curriculum and standards alignment:* the extent to which curriculum and standards match learning objectives
- *Educational content:* the quality of the content or subject matter, organization of content, bias, sensitive content, and scope
- *Learner support resources:* the prevalence of acceptable use policies, documentation of procedures and other support for learners
- *Teacher support resources:* the extent of the instructional and support materials for teacher use
- *Site design:* the quality of the interface, graphics, and multimedia design.

Alley (2000), likewise, argues the existence of 10 critical elements in effective online learning that focus totally on pedagogical design:

- Knowledge is constructed.
- Learning is more effective if a student can take responsibility for her own learning.
- Student motivation is a strong determinant of the outcomes and success of learning.
- Higher order learning requires reflection.
- Learning is unique to the individual.
- Learning is experiential.
- Learning is both social and private.
- Inexorable epistemological presumptions can misdirect higher order learning.
- Learning is spiral.
- Learning is ‘messy’.

Similarly, Barker (2001) describes a 15-page set of quality guidelines for online education and training prepared for the *Community Association for Community Education* in Canada. The guidelines comprise numerous criteria across such scales as *content, technology use* and *pedagogy*. The extent of these guidelines for evaluating and reviewing the effectiveness of online learning materials, in some ways, hinders more than helps those who seek to undertake review processes.

Along with many other universities, Edith Cowan has adopted the courseware management software *Blackboard* for the standard delivery software that will enable all academics to provide a web presence for their courses. This move made it imperative to provide guidelines to ensure that materials used within this framework did not perpetuate a didactic model of teaching. The

guidelines produced by *Blackboard* in conjunction with the *National Education Association* in the USA (NEA & Blackboard, 2000) identified 24 benchmarks for internet based distance learning only three of which related to teaching and learning albeit with a traditional focus—a course approach encouraged, if not explicitly mandated, by the *Blackboard* software

It was therefore important to provide a workable set of guidelines for academic and support staff, such as instructional designers, in the development and benchmarking of online course quality across the institution that emphasised current approaches to teaching and learning in higher education supported by appropriate content and delivery strategies.

A framework for evaluating online learning settings

In previous research into online teaching and learning at our university, we have been mindful of the need for pedagogical re-engineering, a design process where the learning environment is completely redesigned to take intentional advantage of the learning opportunities that are provided by the new technologies (Collis 1997). Such development would take the place of course re-enrichment, where online opportunities are designed as enriching features to what is ostensibly the same learning program transferred to an electronic mode of delivery.

In research into the design of effective technology-based learning environments, we developed a framework which identified and distinguished between three critical elements emerging from the discrete roles for the principal constituents: *the teacher; the student;* and the *computing materials* (e.g., Oliver, Omari & Herrington, 1998). This research was heavily influenced by our firm belief in the notions of constructivism and social constructivism as theories that best describe how learning takes place. Our current research and development is dealing with the utility of using the principles of situated learning to design tasks and resources to support constructivist learning in online settings.

Situated learning is a concept that recognises the value to be gained from contextualising learning within settings which reflect the purpose of learning and how learners might ultimately apply this learning beyond the classroom (e.g., Brown, Collins & Duguid, 1989). Situated learning encourages learners to construct their own meaning from knowledge and information in the learning process and places an emphasis on interaction and socialisation among learners. The application of this approach to learning suggests the need for a revised framework to reflect the processes involved in flexible and technology-based learning. In such a setting, the critical elements now appear as *the content, the learning activities* and *the learning supports*. While these three elements still reflect aspects of the separate stakeholders, they emphasise more the activities of each in the learning process. These elements provide a strong framework for instructional design and highlight the importance of planning specific roles for learners, the teacher and the technology in the learning environment.

The framework described below was developed at ECU to provide a means for consistent assessment and evaluation of online learning materials. It has been designed in the form of a checklist listing what are considered to be critical elements of effective learning environments. The framework is intended to provide users with the capacity to investigate the potential effectiveness of online units through a determination of the scope and extent of these critical elements. A completed checklist will provide a detailed description to the user of the strengths and weaknesses of an online unit.

The checklist is based around the determination of critical elements within three main areas which describe the complete online setting:

- **pedagogies**, the learning activities which underpin the unit;
- **resources**, the content and information which are provided for the learners; and
- **delivery strategies**, issues associated with the ways in which the course is delivered to the learners.

The following section describes the critical elements within each of these areas and provides examples of how these elements can be manifested in online settings.

Pedagogies

A quality unit operationalises recent theory and research into how people learn. The characteristics identified by this research are evident on the screen in the online learning environment or its suggested implementation. It does not rely on tradition or the teacher's intuition to guide its design and implementation. It enhances learning by enabling the identified characteristics of effective learning environments and ensuring that they are present and accessible.

A quality unit presents one or more learning contexts that reflect the ultimate use of the unit curriculum. The interface reflects real-life contexts, and authentic settings are used wherever possible rather than more academic, decontextualised text-based approaches. Quality units are activity-based rather than content-based, and the activities are complex, sustained and reflect real-life tasks. Students have the opportunity to work collaboratively on products rather than exclusively individually.

In a quality unit, the teacher's role becomes one of coach rather than instructor. The teacher facilitates at the metacognitive level, rather than providing solutions to students' problems. Unit activities and assessment are integrated, that is, students are assessed on unit activities rather than by separate assignments and examinations, and they have the opportunity to present polished products produced collaboratively.

Table 1 presents a checklist of items that can be used to assess quality of pedagogy in online units.

Table 1. The pedagogies used in quality learning materials

	Description	Examples
Authentic tasks	The learning activities involve tasks that reflect the way in which the knowledge will be used in real life settings	· Problem-based learning activities using real-life contexts; · Learning tasks based in workplace settings · Tasks are complex and sustained
Opportunities for collaboration	Students collaborate to create products that could not be produced individually	· Tasks are set that require students to collaborate meaningfully · Peer-evaluation, industry mentors · Buddy systems employed to connect learners
Learner-centred environments	There is a focus on student learning rather than teaching	· Teacher's role is one of coach and facilitator · Inquiry and problem-based learning tasks · Activities support and develop students' metacognitive skills
Engaging	Learning environments and tasks challenge and motivate learners	· Interesting, complex problems and activities rather than decontextualised theory · Activities arouse students' curiosity and interests · Activities and assessments linked to learners' own experiences
Meaningful assessments	Authentic and integrated assessment is used to evaluate students' achievement	· Assessment is integrated with activities rather than separate from them · Opportunity to present polished products rather than simple drafts · Opportunities exist for students and their teachers to provide support on academic endeavour

Resources

Resources in a quality unit should be accessible as needed by the students in a non-linear format. They should reflect the currency of the subject matter and be regularly updated if appropriate, albeit seminal and important older works should be encouraged. Copyright is always observed. In a quality unit, resources reflect a rich variety of perspectives to give students the opportunity to judge the merit of different positions, rather than be given a single (the teacher's) viewpoint. Such resources enable learners to access a range of expert opinion from the original source, if possible, rather than through secondary sources. Materials reflect the interests of sometimes marginalised groups, and they demonstrate social, cultural and gender inclusivity. Technology and media are used appropriately according to strengths and affordances, rather than for the sake of technology itself.

Table 2 presents a checklist of items that can be used to assess quality of resources in online units.

Table 2: The resources in quality learning materials

	Description	Examples
Accessibility	Resources are organised in ways that make them easily accessed and located.	· Resources are separate from learning tasks · Intuitive and clear organisational strategies · Resources are accessible in a non-linear format
Currency	The age of resources are appropriate to the subject matter	· Resources should where possible be current and based on regular literature reviews by lecturer · Seminal works should not, however, be removed on the basis of age · Use of primary resources is made wherever possible
Richness	Resources reflect a rich variety of perspectives	· Resources should represent a variety of views (including conflicting views) to allow students the opportunity to assess the merit of arguments · Resources provide for a range of perspectives · Media are used to enrich data sources
Purposeful use of the media	Media is suitable for the purpose intended	· A variety of media is used where appropriate · Book on screen approach should be avoided · Equally, elaborate multimedia should be avoided when a simple diagram would be suitable
Inclusivity	Materials demonstrate social, cultural, and gender inclusively	· Resources include a variety of cultural perspectives where possible · Resources avoid gender and culturally exclusive terms · Separation of local and generic content to facilitate customisation and adaptation

Delivery strategies

Quality units are accessible to people with special needs, such as people with physical disabilities, or geographically isolated students. In a quality unit, the technology is ideally transparent to students. They are able to count on reliability of the technology with robust systems. Students have ready access to the site, and are able to navigate and download materials within a reasonable period of time. The site is not confusing or cluttered, and there are clear directions where appropriate. Unit materials are contextualised, well presented, appealing and easy to navigate. A quality unit ensures that appropriate communication channels are available to students, and they should be able to use a variety of technologies to communicate and collaborate with each other and their teachers.

Table 3 presents a checklist of items that can be used to assess quality of delivery in online units.

Table 3: The delivery strategies in quality learning materials

	Description	Examples
Reliable and robust interface	The materials are accurate and error free in their operation	· Site is accessed reliably · Navigation and orientation is seamless · Many forms of online support for learners
Clear goals, directions and learning plans	Unit information and expectation of student roles are clear	· Students can find information on the website about the unit and its requirements · Unit structure makes explicit relationships between learning outcomes, resources, activities and assessments · Instructions clearly placed and always available
Communication	The unit provides opportunities and encourages dialogue between students and between teachers and students	· Information and communication channels are open and inviting for students · Students are encouraged to communicate with the teacher and other class members
Appropriate bandwidth demands	The materials are accessible without lengthy delays	· Graphics and other elements checked for download times. · Delivery formats employ strategies to optimise download times
Equity and accessibility	Unit materials and activities are accessible and available to all students	· Websites are accessible to disabled students · Course requirements and resourcing made explicit to students ahead of the course · Students are not hampered by firewalls or geographically sensitive restrictions
Appropriate corporate style	Units adopt a corporate style for websites to ensure a benchmark quality of presentation	· Layout and presentation should incorporate common elements on the unit homepage reflecting a corporate style · (The corporate style should enhance rather than dictate a pedagogical approach) · Fonts, resolution etc should conform to the corporate style where possible, but alternatives should be possible when needed

Conclusion

The need for determining and maintaining quality in the process of designing, developing and delivering online learning materials is becoming an important issue for universities and institutions worldwide. It is a process that we at Edith Cowan University have taken seriously for some time and are now in the throes of formalising. This paper has described the development of a quality checklist that we hope will provide guidance to developers and designers and support both formative and summative assessments of our flexible delivery offerings.

The next stage in the process will be to apply the instrument to existing online units to determine its effectiveness. The university employs a number of instructional designers who work with academics across the Faculties and it is with these staff where our initial trialing will occur. As in all quality assessments, this process will be iterative and will result in the need to modify and improve the instrument. A final set of guidelines will then be made available throughout the university for academic staff and other support staff to utilise. It is likely that other institutions in similar situations will find this work of interest and value and we would be very happy to share our experiences with them.

References

Alley, L. (2000). Ten keys to quality assurance and assessment in online learning [Online] Available : http://www.worldclassstrategies.com/papers/keys.htm [11th September 2001].

Ashenden, D. & Milligan, S. (2000). *The good universities guide to universities, TAFEs and private providers*. Subiaco, WA: Hobsons.
Barker. K. (2001). *Quality guidelines for online education and training*. [Online] Available : http://futured.com/form/pdf/english.pdf [11th September 2001].
Beck, S. (1997). *Evaluation criteria: The good, The bad & the ugly: or, why it's a good idea to evaluate web sources.* Institute for Technology-Assisted Learning, New Mexico State University. [Online] Available : http://lib.nmsu.edu/instruction/eval.html [11th September 2001].
Brown, J., Collins, A. & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher, 18*, 32-42.
Burbules, N. & Callister, T. (2000). Universities in transition: The promise and challenge of new technologies. *Teachers College Record*, 102(2), 271-293.
Carr-Chellman, A. & Duschatel, P. (2000). The ideal on-line course. *British Journal of Educational Technology*, 31(3), 229-241.
Chickering, A.W., & Ehrmann, S.C. (1994?). *Implementing the seven principles: Technology as lever*. American Association for Higher Education. [Online]Available: http://www.aahe.org/technology/ehrmann.htm [11th September 2001].
Collis, B. (1997). Pedagogical reengineering: A pedagogical approach to course enrichment and redesign with the WWW. *Educational Technology Review, 8*, 11-15.
Kemp, D.A. (1999). *Quality assured: A new Australian quality assurance framework for university education.* [Online] Available: http://www.detya.gov.au/archive/ministers/kemp/dec99/ks101299.htm [11th September 2001]
Krazit, T. (2001). *MIT to put course materials online for free.* [Online]. Available: http://www.itworld.com/Career/3710/IDG010404/ [11th September 2001]
National Education Association & Blackboard. (2000) *Quality on the line.* [Online]. Available: http:www.ihep.com/PR17.html [11th September 2001]
Nieuwenhuizen, J. (1997). *Asleep at the wheel: Australia on the superhighway*. Sydney: Australian Braodcasting Corporation.
Noble, D. (1998). *Digital diploma mills: The automation of higher education*, [Online]. Available: http://www.firstmonday.dk/issues/issue3_1/noble/index.html. [11th September 2001]
Oliver, R., Omari, A., & Herrington, J. (1998). Exploring student interactions in collaborative World Wide Web computer-based learning environments. *Journal of Educational Multimedia and Hypermedia, 7*(2/3), 263-287.
Radford, A. (1997). The future of multimedia in education. [Online]. Available: http://www.firstmonday.dk/issues/issue2_11/radford/index.html. [11th September 2001]
Ramsden, P. (1992). *Learning and teaching in higher education*. London, Routledge.
Reeves, T.C. (2001) *Teaching and learning online: Opportunities and responsibilities.* Presentation at Edith Cowan University, 25 May, 2001.
Reeves, T. C., & Laffey, J. M. (1999). Design, assessment, and evaluation of a problem-based learning environment in undergraduate engineering. *Higher Education Research and Development Journal*, *18*(2), 219-232.
Reeves, T. C., & Reeves, P. M. (1997). The effective dimensions of interactive learning on the WWW. In B. H. Khan, (Ed.), *Web-based instruction* (pp. 59-66). Englewood Cliffs, NJ: Educational Technology.
Stoll, C. (1995). *Silicon snake oil: Second thoughts on the information highway*. New York: Anchor.
Vaile, A. (1999). Nine keys to quality K-12 online learning experiences. [Online]. Available: http://www.classroom.com/edsoasis/TGuild/FETC99/Vaille1.html [11th September 2001].