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## Quality Assurance

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### Introduction

As educational systems expand and develop to meet the needs of citizens in their jurisdictions, they are required to demonstrate that they are able to deliver significant improvements in terms of increased access, enhanced quality and reduced unit costs.

Open and distance learning (ODL) systems have generally been introduced during the past 40 years to meet the increased demand for educational opportunities at all levels by supplementing face-to-face provision while striving to balance the access-cost equation by reducing infrastructure and full-time faculty costs. The very features of flexibility and accessibility which make ODL an attractive option to the part-time adult learner, also mean that it has frequently been viewed with suspicion by conventional institutions and the public, who are more comfortable with the traditional face-to-face world of the institutional classroom. In such an environment, quality may be assumed to have been to a large extent assured by the qualifications of the full-time tenured faculty member, who has total control of the pedagogical process, and by the qualifications of the students at entry.

The best single-mode ODL providers have been acutely conscious of the need to devise processes that can assure the quality of learning

outcomes and thereby defend the legitimacy of their programmes and awards. Dual-mode (distance and face-to-face) institutions, for their part, have been required to develop quality assurance protocols that demonstrate that their open and distance offerings are of equal quality to those offered in parallel by traditional classroom-based methods. To provide their stakeholders with the necessary reassurance, quality assurance protocols in ODL tend to focus on output measures which are able to demonstrate the value to the student by participation in the process. Large-scale, mature open universities such as the Open University in the U.K. (UKOU), Indira Gandhi National Open University in India (IGNOU) and the Open University of Hong Kong (OUHK), are systems-driven organisations. From their establishment, in order to gain acceptance in the higher education community, they consciously adopted and adapted quality assurance measures from the conventional sector and sought to demonstrate the rigour and dependability of the systems which underpinned the key educational processes: programme planning, course design, course development, course delivery and student assessment and award.

The rapid development and use of instructional technologies in both distance and face-to-face institutions since the late 1990s has resulted in a three-way convergence of distance and face-to-face education and electronic technologies.

In this new, flexible learning environment, the instructor or teacher is no longer the sole (or even the main) source of knowledge, but plays the role of facilitator, supporting active technology-mediated student learning. In cyberspace, the physical proximity of teacher and student is irrelevant, and group, one-to-one, and one-to-many interactions between student and student and students and teachers are freed from the tyranny of the fixed timetable by the capacity of Internet-based technology to provide opportunities for both synchronous and asynchronous communications.

The emergence of the new instructional paradigm means that all institutions that use information and communications technologies (ICTs) to facilitate the interaction of students with content sources, faculty support, information resources or other students, need to review and revise their quality assurance protocols to ensure that they are focusing on appropriate inputs, processes and outcomes. In an Internet-enabled environment, for example, the traditional measures of the size of institutional library holdings and access to databases need to be replaced by measures relating to the mechanisms for information provision and support for student's research work. Similarly, in a disaggregated environment where the instructional design process and the provision of technical support and tutorial services may have been contracted out by the institution to commercial providers, it is no longer appropriate to rely solely upon the procedures for full-time faculty appointment, development and promotion to provide reliable indicators of overall academic quality. Instead, one is looking for evidence of mechanisms put in place by the institution to ensure that its staff at any time are competent for all the tasks required of them and that the procedures for contracting out services are informed by an understanding of best practice in each domain.

Robin Mason sums up the enormous shift in definitions of quality that has already taken place as a result of the massification of higher education by reference to the issue of access. "No issue so exemplifies the relative nature of educational standards as the subject of access. Where once the quality of an educational programme was defined by the number of students it turned away, in today's lifelong learning climate, equality of access to the traditionally disenfranchised is a much more highly regarded attribute than exclusivity" (Mason, 1998).

The technological developments that have led to the convergence of face-to-face and distance learning, and the emergence of a new flexible learning environment for on- and off-campus students of single- and dual-mode institutions, have also facilitated the emergence of providers of educational services that are dedicated to online learning: virtual schools, colleges and universities that offer the opportunity to study anything, anytime, anywhere.

This chapter seeks to explore the imperatives for the development of new modes of quality assurance mechanisms in response to the global online learning phenomenon. It also reviews the results of significant research that has been conducted worldwide in an attempt to develop quality standards and accreditation frameworks to meet the needs of the institutions and the students and that, in turn, influence policy development in the field.

In order to flourish against global competition, both the public and privately funded e-learning institutions need to establish their credentials within their niche in the new global education marketplace. Potential students need reliable indicators of quality to enable them to navigate the increasingly bewildering array of courses and programmes on offer, without falling victim to unlicensed "Web-cowboy" operators, who like their disreputable precursors, the "diploma-mills"

of the age of correspondence courses, may fail to live up to the promises they make and bring the whole new world of technology-mediated distance learning into disrepute. John Randall, chief executive of the U.K. Quality Assurance Agency for Higher Education (QAA), speaking of transnational education at university level, suggests that “individual decisions...to participate in transnational higher education are driven by history, language, cost and recognition. Recognition of the qualifications gained, by governments, employers or professional bodies, is the single most important consideration for the individual” (Randall, 2001). It is therefore imperative for institutions and for agencies involved in the accreditation of courses to seek to develop what Randall describes as a “global currency for higher education qualifications” based upon an evaluation of learning outcomes by reference to generally agreed standards of achievement at defined exit levels. The generic performance indicators proposed by Randall and paraphrased below reflect the current preoccupations of quality assurance agencies seeking to ensure that today’s graduates possess the skills and competencies necessary to enable them to become knowledge workers in a global economy. As such, they provide a useful point of reference in the consideration of quality assurance in the specific context of technology-assisted learning. They have been included as a reminder that while there are specific quality issues arising from the use of technology as a medium of teaching and learning, the same fundamentals of educational best practice must be in place whatever mode of delivery is chosen. This has also been well expressed by the New Zealand Universities Academic Audit Unit (NZAAU) (Butterfield et al., 1999), whose guidelines on External Quality Assurance for the Virtual Institution warn its auditors against “too narrow a focus on a specific medium of teaching and learning, as what (the academic quality review process) is aiming to find out is independent of the medium.”

Thus, for any course or programme, irrespective of the mode of delivery, an institution must be able to demonstrate that:

- Learning outcomes have been set at the appropriate level and clearly communicated to students.
- Content and design of the curriculum and the teaching methodologies employed are effective in enabling the student to achieve the outcomes in terms of both the acquisition of knowledge and the development of related practical skills and abilities.
- Assessment is appropriately designed and rigorously administered to measure the achievement of the outcomes.

## The Need for Quality Assurance in Online Education

### PROTECTING LOCAL PROVIDERS IN A GLOBAL MARKETPLACE

The application of new technologies in the learning environment is not only removing the distinction between conventional and distance education, it is also eroding political and geographical barriers to the movement of knowledge. Whereas within frontiers at the state (e.g., U.S.A., Canada), national (e.g., South Africa, New Zealand) or regional (e.g., E.U.) level, structures exist for the regulation or self-regulation of educational activities, there has traditionally been less regulation across frontiers and there is certainly less still in cyberspace. The growth of the export trade in educational products during the last 10 to 15 years has alerted countries which are net recipients of such products that there is a need to erect barriers in order to safeguard their citizens and institutions against the worst excesses of some entrepreneurial providers, whose major concern is the

financial bottom line rather than the educational experience of the students on the course. Butcher and Welch (1996) describe the problem in Nigeria in graphic terms: "Adventurous entrepreneurs see a juicy field of operation because of the imbalance of demand and supply with a ready market for ever-increasing applicants who are desperate for educational qualification through correspondence measures."

While limited access to the appropriate technology may continue to provide a barrier to Webcowboys in Nigeria, the same is not true of Hong Kong. As one of the traditional net importers of higher education, Hong Kong's response has been to pass the Non-local Higher and Professional Education (Regulation) Ordinance (1996) which requires all overseas providers, not operating through accredited Hong Kong institutions, to register with the government and to meet the stringent quality criteria required for registration ([www.hkcaa.edu.hk](http://www.hkcaa.edu.hk)). Nevertheless, these mechanisms cannot be applied to institutions which operate globally online and have no physical or legal presence in Hong Kong.

Australian universities have been among the most aggressive exporters of educational products to the Asian market in the 1990s. In her paper "Higher Education as a Business: Lessons from the Corporate World" (2001), Yoni Ryan describes how Australia has acted to protect the "brand" of Australian universities against incursions from cyberspace by publishing National Protocols for Higher Education Approval Processes ([www.detya.gov.au/highered/mceetya\\_cop.htm](http://www.detya.gov.au/highered/mceetya_cop.htm)). The protocols provide for virtual universities to be prosecuted in the jurisdiction in which their operations have an adverse effect as well as in their home jurisdiction and make it illegal to use the term "university" in Australia without formal accreditation by state government agencies. As Ryan points out "it is apparent that, in Australia at least, government has asserted its right to regulate borderless education."

While protecting local institutions from the threat posed by the global ambitions of entrepreneurial off-shore institutions, such legislation may, paradoxically, increase the risk to the unwary individual student that the credentials earned through participation in an online course may not be recognised for further study or employment in the participant's country, even though the institution which offers the course may be accredited in its own home jurisdiction. The increasingly global nature of educational provision therefore brings with it a need and a market for consumer advice about what to avoid and what to choose in terms of technology-mediated learning opportunities to make sure that they live up to the claims of convenience, relevance and interactivity that are often made for them.

#### PROTECTING LOCAL CONSUMERS AND PROMOTING LOCAL VALUES

In response to the need for guidance on how to select reputable and appropriately accredited online courses, a number of distance learning hub sites have been developed which offer advice on how to avoid falling victim to diploma mills and fly-by-night "institutions" offering cheap degrees. The advice includes treating as suspicious any institutions with unfamiliar accreditation credentials, institutions with "international," "global" or "world" in their titles, and "sound alike," which are schools that incorporate the names of legitimate institutions into their own names. Sites offering this service include Degree-net ([www.degree.net](http://www.degree.net)), AboutEducation ([www.about.com/education](http://www.about.com/education)) and WorldwideLearn ([www.worldwidelearn.com](http://www.worldwidelearn.com)).

Students engaged in open and distance learning have traditionally been those who have been denied access to a full-time place. As lifelong learning becomes an imperative for active, full-time participants in the labour market, part-time adult distance learners will increasingly seek the convenience offered by technology-mediated learning to meet their professional and technical

updating requirements. Such students are more likely to pay their own fees and, as consumers, will expect high-cost efficiency and effectiveness from their chosen providers. They will demand flexibility which extends beyond the curricula to include entry and exit points, access and accreditation of prior learning, study periods and modes of delivery. Prospective students will want to take the following steps to ensure that the course for which they register can meet their requirements:

- *Check the accreditation* and determine whether it passes muster. It appears that accrediting agencies exist which are prepared to rubber stamp colleges for a fee.
- *Grade the school* by checking out the courses, teachers and credit accumulation and transfer policies and procedures.
- *Tour the campus* by looking at the institution's Web site to see if it's up-to-date and well designed.
- *Use sample courses* and sit in on or a virtual class to determine whether the online format is what they want and to discover whether their computer meets a course's technical requirements.
- *Crunch the numbers* and read the fine print to check that it is what they expect from an online course and that they will not need to visit the campus to register, take exams or participate in classroom discussions.

Canada provides an example of an effort to protect the reputation and market share of higher education institutions in the global education marketplace. The Canadian government has funded the development of a consumers' guide, based upon extensive research into the literature relating to quality in technology-assisted distance learning. The project, which is being prepared for the Community Association for Community Education (CASE) and the Office of Learning

Technologies (OLT) of Human Resources Development Canada (HRDC) by Dr. Kathryn Barker of FuturEd Consulting Education Futurists (FuturEd) aims to produce *Consumer-Based Quality Guidelines for Learning Technologies and Distance Education*. The guide is designed to be applied to education and training products (entire programmes and individual courses) at any level which are delivered by "technology-assisted distance learning," which is defined in the guidelines as "where the learner is in one location and the provider of the learning is in another and technology is used to make the link." In this context, the quality of the education and training products and services is defined in terms of what makes them effective and efficient.

Underpinning the guidelines is the belief that all learning products are a combination or system of inputs and resources, processes and practices, and outputs and outcomes. While all are important, "from the consumer's point of view, the outcomes are the most important, then processes and practices and finally inputs and resources that have gone into the design, production and delivery of the learning product/service."

The guidelines list the desirable features of a high-quality course or programme and are structured to reflect the hierarchy of concerns described above, starting with quality outcomes:

- Acquired content skills and knowledge should be:
  - Relevant.
  - Transferable.
  - Specific for the purpose (e.g. work or higher learning).
  - Blend traditional education and applied technology skills.
- Necessary learning skills are acquired for:
  - Course/programme completion and success.

- Lifelong learning.
- Self-directed learning management.
- Completion takes the form of credit or credentials that are:
  - Recognised by professional accreditation bodies and employers.
  - Recognised by other educational institutions.
  - Of the same value whether acquired through on-site or distance learning.
  - Transferable within programmes and institutions, locally, nationally and internationally.
- Return on investment of the learner's time, finances and energy meets expectations for:
  - Accessibility as needed and when needed.
  - Objective benefits and utility.
  - Effectiveness: subjective achievement of personal goals.
  - Efficiency: best use of resources.
  - Customer satisfaction with all course/programme elements.

The draft guidelines are available at [www.futured.com](http://www.futured.com).

To achieve the output standards listed above, the provider must have in place systematic quality processes and practices for student management systems in the areas of pre-entry counselling, admissions, registration and orientation of students, assessment and recognition of prior learning, and the accurate and secure management of student records. They should allow for learner involvement in decision-making and provide assistance for students with the technologies being used.

In the domain of learning management, the guidelines define the attributes of good teaching processes, good assessment practices, appropriate use of technologies and communications facilities

and include the need for effective human resource management practices and an inclusive programme management system.

While the first two sections of the guidelines aim to provide the student with sufficient performance indicators to enable him or her to evaluate the quality of the learning experience, the final section on quality input and resources provides a useful checklist for the policy-makers and providers of technology-assisted learning on the essential components of a quality course or programme:

- Clearly defined and achievable learning objectives.
- Relevant, scholarly and up-to date-curriculum content.
- Well-designed teaching and learning materials.
- Well-supported total learning package.
- Appropriate use of learning technologies.
- Sound technical design.
- Appropriate and necessary personnel support.
- Provision of access to additional learning resources.
- Planned resource provision.
- Outline review and evaluation cycle.

The FuturEd project includes in its objectives that the guidelines should reflect Canadian values, and its authors believe that if they are adopted by CASE and others in the Canadian technology-assisted distance learning community, the international market will appreciate Canadian quality values and have greater confidence in choosing Canadian courses and programmes offered online.

National governments in many of the advanced industrial economies have not been slow to embrace e-learning, recognising the potential presented by the global market for education to secure new revenue to offset high infrastructure

and development costs and at the same time to further their ambitions to trade in other economic sectors. The advantages presented to learners in developing countries by the opportunity to access scarce, top-quality expertise anywhere in the world and to gain access to curricula that embrace a broader spectrum of knowledge than any one institution might accomplish, (Mason, 1998) must be offset by the danger of the emergence of a new cultural imperialism. The globalisation of content facilitated by the new communications technologies leads to a potential loss of cultural diversity and richness. In the domain of quality assurance, global access makes the application of standards and performance measures even more problematic. If standards are relative to the context, to the needs of the students and to their approach to learning, they will be disparate. If, as Tait (1997) asserts “no quality assurance system can be transplanted from one institution to another across organisational, social and cultural boundaries,” how can local cultures, institutions and educational approaches retain their voice in a globalised world? The Canadian approach of researching global best practice and deriving national benchmark standards in key domains which can be applied both to local courses and to those offered by remote providers may offer a useful model which could be applied by policy-makers in other jurisdictions.

## The Role of Accrediting Agencies

National quality assurance agencies have also published guidelines to meet the needs of their constituent institutions which are engaged in the delivery of open and distance learning. Examples include those produced by the Quality Assurance Agency of the U.K. in 1999 ([www.qaa.ac.uk/public/dlg/append1.htm](http://www.qaa.ac.uk/public/dlg/append1.htm)), which are based upon generic guidelines on quality assurance procedures originally developed for

programmes delivered face to face, published in 1996, and the NZAAU’s guide to “External Quality Assurance for the Virtual Institution” (Butterfield et al., 1999) referred to earlier. In Australia, where open and distance learning at university level is provided on a very wide scale through dual-mode institutions, and where the development of technology-mediated flexible learning resulting from the convergence between distance and face-to-face modes of delivery is well advanced, all institutions and programmes are audited according to a single set of benchmark standards irrespective of the mode of delivery (McKinnon et al., 1999). The approach of these agencies is influenced primarily by their mandate to assure the accountability of institutions in their sector for the expenditure of public funds and to maintain the credibility system by ensuring comparability of standards at the national and international level.

In the U.S., there is no national academic audit agency, and accreditation is a voluntary activity undertaken usually at the regional level among groups of institutions. In the global virtual education market, students continue to seek assurance that the programme they are studying is accredited by a reliable agency or that it bears the insignia of an institution or group of institutions, whose names are synonymous with excellence. The development of consortium arrangements for the delivery of online courses and programmes is mirrored by greater collaboration in policy development across accrediting regions and states. For example, the *Guide to Best Practice for Electronically Offered Degree and Certificate Programs* has been developed by the Western Cooperative for Educational Telecommunications, an arm of the Western Interstate Commission for Higher Education (WICHE) spanning 15 western states in the U.S. ([www.wiche.edu/telecom/accrediting-best-practices.pdf](http://www.wiche.edu/telecom/accrediting-best-practices.pdf)). This project takes as its starting point the fact that well-established essentials of institutional quality found in regional

accreditation standards are applicable to the emergent forms of learning. Taken together, they reflect the values which the regional commissions foster among their affiliated colleges and universities:

- That education is best experienced within a community of learning where competent professionals are actively and co-operatively involved with creating, providing and improving the instructional programme.
- That learning is dynamic and interactive, regardless of the setting in which it occurs.
- That instructional programmes leading to degrees having integrity are organised around substantive and coherent curricula which define expected learning outcomes.
- That institutions accept the obligation to address student needs related to, and to provide the resources necessary for, their academic success.
- That institutions are responsible for the education provided in their name.
- That institutions undertake the assessment and improvement of their quality, giving particular emphasis to student learning.
- That institutions voluntarily subject themselves to peer review.

The resulting statements of best practice relate to five key areas of institutional activity relevant to technology-mediated distance education:

- Institutional context and commitment.
- Curriculum and instruction.
- Faculty support.
- Student support.
- Evaluation and assessment.

They offer a comprehensive guide for institutions contemplating the move into technology-mediated learning to the range of quality issues involved under these five headings. Yet again,

the underpinning message to providers is clearly expressed: “Methods change but standards of quality endure. The important issues are not technical but curriculum driven and pedagogical. The big decisions are made by qualified faculty and focus on learning outcomes for an increasingly diverse student population” (WICHE, 2001).

The set of quality benchmarks for Internet-based distance learning published by the U.S. Institute for Higher Education Policy (IHEP) in April 2000 under the title “Quality on the Line” ([www.ihep.com/quality.pdf](http://www.ihep.com/quality.pdf)) is based upon a study which identifies first-hand practical strategies to achieve quality learning being used in U.S. colleges which are acknowledged to be leaders in online distance education. As the press release which accompanied the launch of the study stated: “Many (of the benchmarks) are common sense, but the study validates their importance.” The key areas affecting the quality of technology-mediated learning are common to all of the published benchmarks and guidelines and relate to:

- *Institutional support*: reliable secure technology; established systems for development and delivery of distance education.
- *Course development*: learning outcomes driven; regular review and updating; “designed in” learning activities (analysis, synthesis, evaluation).
- *Teaching/learning*: required and facilitated student/faculty interaction; constructive and timely feedback; instruction in effective research methodology.
- *Course structure*: pre-registration consultation; clear information on course objectives and learning outcomes; access to library resources; clear expectations on assignments and timelines.
- *Student support*: full information on requirements and support services; hands-on

training; access to technical assistance; transparent advisory and complaints structure.

- *Faculty support*: technical assistance; initial training and assessment in online instruction; on-going support and mentoring; written resources.
- *Evaluation and assessment*: evaluation of educational effectiveness and teaching/learning process by multiple methods using specific standards; use of quantitative data to evaluate effectiveness; regular review of learning outcomes to ensure clarity, utility and appropriateness.

## Other External Influences: Marketing Excellence

At the same time as external accreditation agencies and educational policy-makers are seeking to realign their quality criteria to meet the needs of institutions and students for appropriate benchmark standards in technology-assisted learning, the role of the media is driving an increased emphasis on internal quality review and the publication of performance indicators. As education (particularly higher education and professional development programmes) becomes more competitive, there is an increased consumer and stakeholder (including shareholder) demand for market information. Publications already exist to meet this demand for rankings in relation to face-to-face institutions. The annual ranking of U.S. colleges, universities and graduate/professional programmes published by *U.S. News and World Report* (see [www.usnews.com/usnews/edu/eduhome.htm](http://www.usnews.com/usnews/edu/eduhome.htm)) is immensely influential. *Macleans* magazine fulfils a similar role in Canada (see [www.adm.uwaterloo.ca/infoipa/macleans.html](http://www.adm.uwaterloo.ca/infoipa/macleans.html) and [edmonton.globaltv.com/edm/news/stories/news-20001113-100346.html](http://edmonton.globaltv.com/edm/news/stories/news-20001113-100346.html)).

Despite the efforts of the U.K. QAA to prevent the findings of their assessment exercises being translated into rank order listings, U.K. institutions do find themselves ranked in the educational press by research excellence, teaching excellence and even by the salary of their vice-chancellor. Australian universities compete for the title of University of the Year, a media award which represents a much-prized addition to the letterhead of the more aggressively entrepreneurial competitors in the international and global education market. The home page of the University of Southern Queensland proclaims that institution to be joint winner of the *Good Universities Guide 2000–2001* University of the Year award for developing the e-university (see [www.usq.edu.au](http://www.usq.edu.au)).

External awards and media rankings alone cannot satisfy consumer needs for information on the quality of the education offered by virtual providers. Higher education institutions competing in the worldwide virtual education market may find themselves having to develop and disseminate information on the quality of their services on a continuous basis and to make it available to potential “clients” in readily accessible forms. In this regard, student and employer satisfaction surveys are already rapidly becoming key evaluation mechanisms which demonstrate responsiveness to market. The recently published (April 2001) results of the study by researchers from the University of Western Ontario’s Richard Ivey School of Business and Athabasca University’s Centre for Innovative Management comparing student-to-student classroom and online learning in M.B.A. programmes at the two institutions offers an interesting example of this phenomenon ([www.athabascau.ca/mba](http://www.athabascau.ca/mba)). Technology-assisted delivery provides new opportunities to access data for the feedback-evaluation-quality improvement loop, which is an essential element of an effective quality assurance system.

Policy-makers opting for technology-mediated learning solutions must factor in the cost of designing quality management systems which use the data collected as part of a constant quality improvement process.

In addition to formal evaluation tools administered by the individual institutions providing technology-assisted distance learning, a number of the sites which act as brokers of online courses and programmes provide an opportunity for learners to review the offering and post it for consideration by prospective users. An example of this facility can be found at [www.mindedge.com](http://www.mindedge.com).

While this public scrutiny contributes significantly to the transparency of internal quality assurance mechanisms, and while learner feedback is an essential component of a fully developed quality assurance system for any institution, these measures are not of themselves a sufficient guarantor of quality in a global market in which technology-mediated education is growing exponentially. As Laurillard (1993) states: "Quality is best established through organisational infrastructure and collaboration. It is inefficient to promote quality via competition. Competition allows only non-referenced testing of 'products' not criterion referenced testing which is more rigorous and more suitable for the academic context." Thrall (1999) confirms the vulnerability of virtual universities to a loss of consumer confidence caused by their inability to provide evidence that they can withstand scrutiny by the traditional measures of academic quality. "Any qualms about quality among potential students could spell disaster for the virtual university that fails to aggressively address the issue. Even for those virtual universities that do not have their own faculty, but instead broker courses and degrees created and taught by other institutions, questions about technical and pedagogical standards loom large."

## The Internalisation of Quality Assurance: Quality Education Work

If they are to achieve the prescribed benchmark standards of the relevant accrediting agencies and meet the demand for transparency in educational processes described above, virtual institutions must be actively engaged in what Massy (2001) describes as educational quality work (EQW) in the context of technology-mediated learning. Like much work in quality assurance in education, EQW has its roots in the ideas of Deming, Baldrige (see the 2000 performance criteria at [www.quality.nist.gov/bcpg.pdf.htm](http://www.quality.nist.gov/bcpg.pdf.htm)) and ISO 9000, but is grounded in the context of academic operations. Massy postulates that the framework for quality management based upon EQW should empower and stimulate faculty to continuously improve teaching and learning. The five key domains of EQW are familiar from the current literature:

- The determination of learning outcomes.
- The design of curricula to meet the learning outcomes.
- The design of teaching and learning processes.
- The design and use of student assessment measures.
- The implementation of quality assurance.

In this methodology, institutions and departments exemplifying best practice should be able to demonstrate that they:

- Define educational quality in terms of learning outcomes.
- Focus on the process of teaching and learning to strive for coherence in curricula and educational processes.
- Work collaboratively to achieve mutual involvement and support.

- Base decisions on facts wherever possible (evaluation).
- Minimise controllable quality variation.
- Make continuous improvement a top priority.

The key respects in which appropriate quality assurance systems for technology-assisted learning differ from those designed for conventional face-to-face delivery are in their concern for the appropriate choice and effective management of the technology to meet the expectations of all of the stakeholders and in the emphasis they place on the need for faculty and student training and support systems to enable them to operate effectively in the new learning environment.

## Can Virtual Education Deliver on Its Quality Promises?

In the U.S. in 1997–98 federal survey of distance education estimated that 1.4 million students were enrolled in for-credit college level courses. New estimates are that about 75% of established colleges and universities have some online presence including the requirement that students in conventional face-to-face institutions take at least one online course each semester, which means that virtual education is a reality for over one million students. For example, at Fairleigh Dickinson University, to ensure that graduates are comfortable researching, exploring and relating in cyberspace, all students (effective with the freshman class entering in September 2001) are required to take a distance learning course each academic year (see [www.fdu.edu/academic/webcampus.html](http://www.fdu.edu/academic/webcampus.html)).

According to IDC, a technology research firm, approximately 85% of established colleges and universities will rely on some form of distance education by 2002. If one takes into account the accredited for-profit universities, the institutions formed by alliances of institutions and the prestigious face-to-face institutions proposing to

provide global access to some of their courses by e-learning through links with educational technology companies, one might be forgiven for assuming that virtual education provides worldwide access to educational opportunities in quantity and quality unparalleled in the history of open and distance learning. (For an example of how Cambridge University has linked up with educational technology companies, see the article “The Cambridge E-MBA — A Market First,” at [www.geteducated.com/vubd/vubdjan2001.pdf](http://www.geteducated.com/vubd/vubdjan2001.pdf).)

Technology-assisted learning holds out the promise of enhancing distance education by:

- Enabling the active engagement of the learner in the construction of knowledge.
- Making available real-world problems and situations.
- Providing representations in multiple modalities.
- Drilling students in basic concepts to reach mastery.
- Facilitating collaborative activity among a diverse student group.
- Requiring students to learn the tools of scholarship.
- Simulating laboratory work.
- Providing continuous opportunities for self-assessment.

Nevertheless, low completion rates in virtual courses and programmes continue to reflect students’ frustrations with those features of the virtual learning environment which do not match up to the on-campus experience. Despite the potential of technology to deliver convenient “any time any place” education, the primary demotivating factors for the virtual e-learner continue to echo the long-running complaints of the distance learner, which stem from a sense of isolation from a learning community:

- Lack of access to student support.
- Unavailability of financial aid.
- Lack of timely feedback.
- Technical problems with delivery techniques.

In *The Business of Borderless Education*, (Cunningham et al., 2000) a series of “hot spots” for consideration by agencies seeking to accredit virtual courses and programmes is listed. These hot spots indicate those areas where the current practice of virtual providers frequently does not match the standards set for other accredited distance learning provision and affects stakeholder confidence:

- Standard of online information and library resources.
- Verification of student identity in a virtual environment, including for the purpose of assessment.
- The use of part-time contract as opposed to full-time tenured academic staff.
- Subcontracting of administrative and ICT functions to separate commercial companies.
- Corporate management prevailing over academic governance.
- No or little research undertaken by faculty.
- Decoupling of research and teaching/course development.
- Limited range of programmes (best-sellers).
- Trans-border coverage.
- Discrepancies between measures of attendance in online and face-to-face modes.

The first of these concerns relating to the quality of Internet information sources has been addressed by a number of university libraries. This has led to the development of guidelines to evaluate such sources, which commonly relate to the scope, content, accuracy, authority, currency, uniqueness and quality of the writing in the quoted references as well as to the links to other

resources that they provide (see <http://info.lib.uh.edu/pr/v8/n3/smit8n3.html>).

The recently announced (April 2001) Open Course Ware (OCW) initiative by Massachusetts Institute of Technology (MIT) in which it proposes to put nearly all of its course material online over the next 10 years and which seeks to “begin to realise the Internet’s potential as a Great Library of Alexandria for the 21st century world” should provide a boost to Web-based distance learning by adding to the total number of resources available on the Web (see [web.mit.edu/newsoffice/nr/2001/ocw.html](http://web.mit.edu/newsoffice/nr/2001/ocw.html)).

## Barriers to Quality

In all of the hyperbole surrounding the marketing of e-learning as the golden key with which worldwide learning opportunities will be unlocked, it is easy to lose sight of a number of barriers which continue to affect the achievement of quality goals in technology-assisted learning. The first and most significant of these relates to inequality of access to the technology itself: the so-called digital divide. Even in the U.S. where the penetration of the Internet is reaching 43% (135.7 million users) and where online education is most prevalent, most Americans do not have a computer at home hooked up to the Internet, and those that do are using a 28.8K modem which effectively limits the ability of faculty and instructional designers to develop truly effective and appealing online courses (Thrall, 1999). Moreover, if one takes into account the fact that in China, penetration is only 2% and in India 3% and even less in other jurisdictions, (Dhanarajan, 2001), those without access to the hardware, connections and skills to use the ICTs will be effectively disenfranchised, unless providers recognise that the provision of access to lifelong learning opportunities tailored to meet the learners’ needs is part of their mission as educators. Dhanarajan raises the spectre of these already disenfranchised

groups of the “digitally homeless” being ignored in “the relentless pursuit of market share, recognition and profit.”

The accusation that a global, technology-mediated education is “inherently immoral, consumerist, and sub-standard” (Mason, 1998) is one element of the vociferous opposition to virtual learning, expressed by traditional universities (as indeed it was for open and distance learning some 30 years ago). This view echoes justifiable concerns from the distance education community that best practice in technology-mediated learning will be derailed because of a chronic lack of funds in the public sector and an overriding concern for the financial bottom-line in the for-profit sector.

The rapid development of ICTs and the resulting emergence of a common technology-mediated flexible learning paradigm in both face-to-face and distance teaching has necessitated a change in the role of faculty “from being mainly a content expert, to a combination of content expert, learning process design expert and process implementation manager” (Massy, 1997), which, at the very least demands that they undertake a serious reappraisal of their function, competencies and mode of interacting with students. It is evident that e-learning will require the acquisition of new technological skills and knowledge, and that it has the potential to undermine faculty status prerogatives, may lead to the loss of faculty jobs, threaten ownership of intellectual property and decrease personal contact with students, while at the same time requiring them to provide 24-hour access by e-mail and to give prompt and clear responses to all queries.

Klass (2000) acknowledges that the resistance from academics is to some extent motivated by self-interest but indicates that “many are troubled by the prospect that a combination of market forces and Internet technology will produce ‘digital diploma mills,’ undermine the fundamental faculty prerogative of tenure [and] accelerate the growth of an instructional underclass” while at

the same time, necessitating greater administrative control of academic activity; “the potential for administrative scrutiny, supervision, regimentation, discipline and even censorship increase dramatically.”

Resistance to change is not a new phenomenon in universities. F.D. Roosevelt is quoted as remarking that “it is easier to move a cemetery than change a university curriculum.” If the defining characteristics of a traditional university are that it provides “a rich educational environment, informed by research, supported by library resources and enhanced by campus togetherness” (Mason, 1998), the well-managed virtual university can provide all of these through technological means. What is more, it can offer its students hitherto undreamed of convenience, flexibility, relevance and opportunities for interaction with faculty and fellow students from around the world.

National governments, in the developed world at least, have recognised both the potential of e-learning for meeting the needs of their citizens, and the danger inherent in being left behind. The (Canadian) Advisory Committee on OnLine Learning, in its March 2001 report to the government, summarises its position thus:

In a global society based on expanding knowledge, Canada’s health as a civil society and its economic competitiveness, as well as the success of individual Canadians, will hinge on having the best possible education and access to lifelong learning opportunities. Around the world, online learning...has emerged as a powerful and transformative means to meet these learning needs, as well as to extend and enrich traditional modes of instruction at the post-secondary level (Advisory Committee on Online Learning, 2001).

The report points out that if Canada does nothing, online learning will still come to post-secondary education in Canada, but it will increasingly be

provided to Canadian learners by off-shore institutions and corporations that will be responsive only to global market forces and their own domestic exigencies. The requirements of Canadian learners, communities and employers will not be of much concern in most cases.

In the policy discussion paper which marked the first steps towards the establishment of a National Virtual University for Finland (Karran and Pohjohnen, 2000) the researchers were given the task of designing a structure which could maximise the benefits of the use of new technologies to higher education in the most cost-efficient way. After comparing the results of the California Virtual University and the Western Governors University, the team concluded that “The opportunities presented by a NVU will be best exploited if it covers a full range of university features including [not only] teaching, [but also] research, technology transfer, careers advice, and if it links to local/regional learning communities.”

In December 2000, the Web-based Education Commission to the President and Congress of the United States submitted its report entitled “The Power of the Internet for Learning: moving from promise to practice.” It identified the promise of the Internet:

- To centre learning around the student instead of the classroom.
- To focus on the strengths and needs of individual learners.
- To make lifelong learning a practical reality.

It also identified the existing barriers to realising the potential of the technology for enhancing learning and made a series of key recommendations on how to remove them. The solutions identified in the report relate to the key meta-components of quality in virtual education discussed above:

- Equitable access to appropriate technology.
- Sustained staff development and training.

- Systematic curriculum design and development embodying appropriate cultural values and based on an understanding of students’ learning needs in the local context.
- Well-supported delivery based on an understanding of learning styles.
- Well-integrated evaluation and feedback mechanisms.
- Long-term resource planning to ensure sustainability.

It is vital that any policy-maker contemplating introducing technology-mediated distance education should be ready to make a commitment to securing the technical, legal, financial, human and pedagogical infrastructure requirements described in that report. It is therefore appropriate to conclude this review of quality assurance in virtual education with a must-do list for policy-makers and administrators contemplating making the leap into e-learning:

- Provide access to the technologies at affordable costs.
- Provide continuous training and support for educators and administrators at all levels in the effective use of technology for educational purposes.
- Establish or have ready access to a research, development and innovation programme to investigate how people learn in the Internet age and what kind of organisational structures can best support that learning.
- Develop or acquire high-quality online educational content that conforms to the highest standards of educational excellence and meets the needs of its learners.
- Revise the legal and regulatory framework to enable it to support a flexible, learner-centred global educational paradigm.
- Protect learner privacy.
- Sustain funding to support the new developments.

The last word must go to Sir John Daniel, Vice-Chancellor of the UKOU, who in a speech at the OUHK in December 2000 reminded his audience: "Finally and very importantly, we must remember that online learning is a means to an end. For us the purpose is to be an open university, defining ourselves in terms of what we do for people, not an e-university defining ourselves in terms of the technologies we use."

Educational providers who are considering entering the field now have extensive literature and multiple examples of well-designed codes of practice to guide them. Technology-mediated learning has the potential to enable more learners to achieve quality learning outcomes. In order to meet the needs and aspirations of the learners, appropriate, culturally sensitive quality assurance mechanisms must be designed, keeping in mind all of the processes contributing to the educational programme. Wherever possible, the capacity of the delivery technologies for data collection and analysis should be harnessed for the purpose and the cost of quality assurance must be factored into the calculation of total expenditure required to launch a successful initiative.

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## Additional Web Resources

### EDUCATIONAL TECHNOLOGY COMPANIES

AboutEducation	<a href="http://www.about.com/education">www.about.com/education</a>
degree.net	<a href="http://www.degree.net">www.degree.net</a>
World Wide Learn	<a href="http://www.worldwidelearn.com">www.worldwidelearn.com</a>
Mind Edge	<a href="http://www.mindedge.com">www.mindedge.com</a>

### MEDIA

<i>U.S. News and World Report</i>	<a href="http://www.usnews.com/usnews/edu/eduhome.htm">www.usnews.com/usnews/edu/eduhome.htm</a>
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### UNIVERSITIES

Fairleigh Dickinson	<a href="http://www.fdu.edu/academic/webcampus.html">www.fdu.edu/academic/webcampus.html</a>
Southern Queensland	<a href="http://www.usq.edu.au">www.usq.edu.au</a>
Houston	<a href="http://www.uh.edu">www.uh.edu</a>