Acta Academica 2001 33(2): 127-145

Annette Wilkinson, Liezel Wilkinson & Guillaume Nel

Balancing quality and access in online education

Summary

The new information communication technologies offer exciting new possibilities for online/Web-based education. Two factors have come to be viewed as central to assuring quality in this type of education, viz the availability of adequate infrastructure and the development of effective mechanisms for evaluating the quality of education. Clear standards can certainly provide a basis for quality practice. The critical issue, however, seems to be the inaccessibility of advanced communication technologies to many potential learners. In these circumstances it is of the utmost importance to achieve a balance between accessibility and quality.

Ewewig tussen gehalte en toeganklikheid in netwerkgerigte onderwys

Die nuwe inligtingskommunikasietegnologieë het opwindende nuwe geleenthede vir netwerkgerigte afstandsonderwys geskep. Twee uiters belangrike aspekte kom egter na vore wanneer gehalteversekering van hierdie tipe onderwys ter sprake kom, naamlik die toeganklikheid tot die nodige infrastruktuur sowel as die ontwikkeling van effektiewe meganismes waamee die onderrigkwaliteit geëvalueer kan word. Die formulering van duidelike standaarde kan sekerlik die basis van goeie onderrigpraktyk vorm. Die mees kritieke vraagstuk is egter die ontoeganklikheid tot gevorderde kommunikasietegnologieë van baie potensiële leerders. In hierdie omstandighede kan die verkryging van ewewig tussen toeganklikheid en gehalte as van die uiterste belang geag word.

Dr A C Wilkinson, Dept of Postgraduate Education, Vista University, P O Box 380, Bloemfontein 9300; E-mail: wlksn-ac@blenny.vista.ac.za; Miss L Wilkinson & Mr G Nel, Dept of Information Technology, Technikon Free State, Private Bag X20539, Bloemfontein 9300; E-mail: liezel@tofs.ac.za & guilnel@tofs.ac.za

The new breed of online educators envisions a world of opportunity as education delivered via e-mail/internet/World-Wide Web has the potential to set higher education free from the physical limitations of the lecture room.[1] But while cyber students click their way through online lectures and interactive multimedia textbooks, the world is struggling with the question of how to ensure that students learning via the new means receive the same, or better, quality of education as with traditional contact tuition. In considering this question, two factors have come to be viewed as central to assuring quality in online distance education (cf Broad 1999: 6):

- the availability of adequate infrastructures to support effective online teaching and learning, and
- the development of effective mechanisms for evaluating the quality of online distance education from a variety of perspectives (learners, educators, institutions and external role-players).

Students thus need to be able to access the course and online versions need to allow for successful learning. However, it is not so easy to achieve a balance between these two factors. Though the internet is billed as a site of academic freedom, people can only enjoy this freedom if they have the financial means (or the institutional backing) to support a connection to the internet and its vast array of resources (Duin 1998: 17).

It is against this background that aspects of the introduction of online education in South African higher education are discussed here. The importance of the issue of access and the setting of guidelines for good practice is emphasised by the findings of a survey among groups of Information Technology students at the Free State Technikon (TFS).

1. The quality issue

Monitoring the performance of educational institutions is a matter of increasing urgency, particularly for the distance/online learning mode

1 This article is based on a paper delivered at the Conference on Information Technology in Tertiary Education (CITTE 2000) at the University of Port Elizabeth, 28-30 June 2000.

because of its distinct philosophy, methodology and approach. To make this type of education conducive to effective learning and to ensure its credibility it is essential to include quality assessment procedures within its basic structure.

The concept of quality assurance is currently a popular subject of discussion and research in academic and teaching circles. Smit *et al* (2000: 184) provide a definition compiled from a number of sources. Thus quality assurance is:

> policies/attitudes/means/actions/procedures/a system/attention
> that will
> ensure/assure/confirm/guarantee/demonstrate/certify
> that the quality of
> teaching/scholarship/education
> is maintained/enhanced.

Quality assurance therefore implies some form of control, but it should not be confused with quality control itself. These concepts have different meanings and can be contrasted, as described by Becher (1999: 226-7). That there is tension between the demand of institutions for autonomy and the demand of the public sector for accountability cannot be denied, but the dominant trend world-wide seems to be a move away from external quality control to internal quality assurance. In this scenario the role of the external agency is largely to put pressure on the institution to create self-improving systems and support the development of self-evaluation skills (DoE 1996: 37).

Ljosa (1995:1-3) warns that although new technology sometimes significantly improves quality, at other times it may be disastrous. Its effects on learning are not as well known as those of traditional methods and media. It often takes time to find out how a new technology may best be used to stimulate meaningful communication and support learning. In the changing higher education scene there is clearly some confusion about what quality means in these circum-

stances. The common complaint about state quality control systems is that they tend to become too rigid and are not flexible enough to adapt to innovation and development (Ljosa 1995: 1). Thus it is important to build into these systems mechanisms that enhance innovation and improve quality in a continuous effort to adapt products and processes to the needs of an institution's actual and potential students. The real problem thus lies in the formulation of standards for quality teaching and learning, whether offered online or by means of traditional contact or distance education.

It is not easy to find universally accepted criteria and it is likely that there will be differences of opinion from country to country. Even within any one country, one can expect to find differences among interest groups such as students, teachers, academic administrators, government, employers, and the general taxpaying public. In addition, the importance of good teaching varies according to the institutional category concerned (community college, research university, technikon/technological university). Chalkley *et al* (1999: 1) rightly pose the following questions in this regard:

> Does 'good' denote the achievement of certain standards (of teaching or student performance) and if so, which standards, or whose standards? Alternatively, might it refer to the value added to student performance by the educational experience and, if so, how is this to be measured? Should it be judged in terms of cost effectiveness: is good teaching about securing maximum learning at minimum cost? Should evaluations be made mainly by the teachers themselves, as the key professionals, or are students and employers the best judge?

These questions are not easy to answer, but there is universal agreement that clear standards/criteria/indicators of good practice, which take into account the needs and roles of all involved, can provide the basis for quality education. But the crucial issue in terms of the quality of online education is the availability of the infrastructure necessary for the delivery of effective learning opportunities — the issue of access.

2. The issue of access

For many countries, and particularly those in the developing world, the lack of network and telecommunication infrastructure is considered the major obstacle to Web-based education. In his set of prin-

ciples for the design of good distance education programmes, Ragan (1999: 3-4) states that instructional media and tools should be selected on the basis of their accessibility to learners. In countries like the USA, quality concerns are more likely to relate to the lack of capacity or band-width within their computer/telecommunication networks. Institutional needs for network and desktop hardware, software, support and training are also considered to be major factors influencing the growth of online distance education in the developed world (Broad 1999: 8).

In developing countries the sphere of influence of universities relies on a very practical, physical issue — the presence of technology. Many technologies, including the internet, are making their way into these countries. But, as Wilson & Meadows (1998: 23) remark:

> Some two-thirds of the people on our planet have no access to a telephone. They are totally disconnected from the communications and information revolution that is the present vehicle for human progress and possibility.

Like many other developing countries, South Africa is facing the challenge of harnessing information and communication technologies effectively in order to accelerate social development. The debate in this area centres on the extent to which the adoption and use of these technologies can contribute to the reduction of the massive inequity that exists among and within societies. Often the simplistic conviction that Africa will automatically benefit from the development of advanced communication is expressed, but there is some awareness of the danger that the explosive growth of such technologies may serve to entrench disparity rather than to eradicate it (SAIDE 1999: 1). In this regard, Duin (1998: 16) points out that

> those who study via the Internet, and those who offer education online, are those with power and authority in businesses, schools and community groups. Though the Internet is billed as a place for democratic freedom, people are only as free as they have the money (or institutional) backing to support a connection to the Internet and its vast array of resources.

Until very recently, many of the new information technologies — CD-Rom, internet, the Web — were totally unknown to the vast majority of open learners in South Africa. It is interesting to note

that, of the 750 million inhabitants of the African continent, only about 2.85 million use the internet on a regular basis, 1.82 million of them from South Africa. This means that roughly 6% of the South African population regularly uses electronic technology. This figure is low in comparison with 43% for the USA and 34% for Europe (but still higher than the 0.03% of a Brazil). The cost of computer equipment is held to be the most important reason for the relatively slow growth of internet usage in South Africa, but it is expected that cordless internet technology (WAP) will play a major role in bringing the Web to the masses by means of cell phones and handheld computers (*Sake* 2000: 3).

In the case of higher education in South Africa, research undertaken by Beneke (1998 & 2000) shows that most students in formerly disadvantaged communities do not even have access to basic technology such as the telephone or tape recorders. Figure 1 reflects the availability of technology to students studying with the Vista University Distance Education Campus, as determined in surveys undertaken in 1989, 1994 and 1998. In the first survey, 2073 of the targeted population of 4555 first-time students responded to a mail

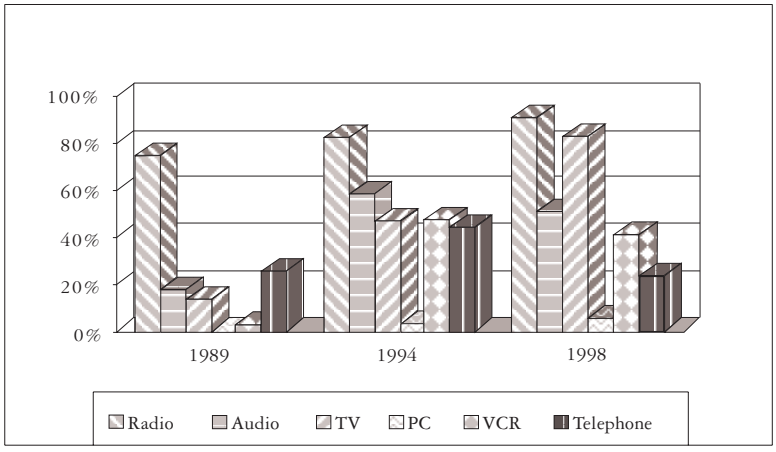

Figure 1: Distance education students' possession of technology

questionnaire (a response rate of 45%). The second study (1994) comprised 1099 History students and achieved a 35% response rate. The third study (1998) targeted a population of 3891 students enrolled in the same programmes as in the first survey. A total of 1634 students responded (a response rate of 42%) (Beneke 2000: 64-7).

An analysis of the information in Figure 1 indicates that, on the whole, few students possessed electronic media to enhance their learning. Limited numbers had access to computers (from almost 0% in 1989 to 8% in 1998) and a mere 40% had access to telephones in 1998. It is quite obvious that online education would not have been possible for most respondents. There has clearly been an improvement in access to public media technologies, although it is interesting to note that personal possession of equipment seems to have declined. Beneke (1998: 78) suggests that a change in the population as well as economic influences may have played a role in this regard (Beneke 2000: 87).

Emulating Beneke's study, the authors conducted a survey during the first semester of 2000 by means of a questionnaire distributed to students in two classes at the Free State Technikon. Students were asked, *inter alia*, to indicate their degree of access to certain technologies. Figure 2 indicates the results. Group A comprised the 47 second-year students in the Department of Information Technology (IT) who attended class on the day of the survey, and Group B the 150 first-year students attending a computer end-user class in the Faculty of Management. Most of the respondents were from disadvantaged communities (93% in the case of Group A and 94% for Group B). Figure 2 indicates the results of the survey.

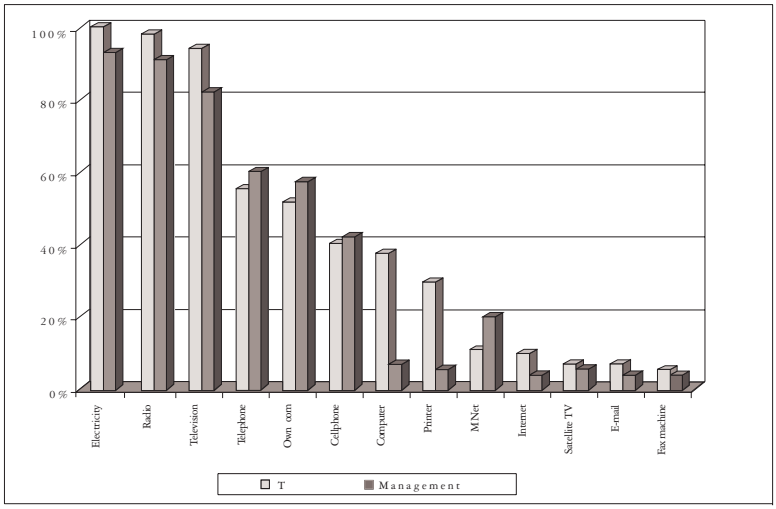

Figure 2: Possession of technology of students in two Faculties at the Technikon Free State

From Figure 2 it is clear that fewer than 50% of the group of second-year IT students (Group A) had access to a telephone, while only 38% had access to a computer. Although the high level of access to electricity (almost 100%), as well as to radio and television (98% and 95% respectively) is encouraging, a situation in which more than 60% of students in a second-year computer science course did not have access to a personal computer would be unthinkable in a developed country. The 10% and 7% linkage to the internet and e-mail, respectively, further highlights the inaccessibility of the communications technology needed for online education.

The respondents in Group B, attached to the faculty of Management, were in an even worse position with regard to the possession of advanced technology. Although a similar high degree of access to electricity (95%), radio (95%) and television (88%) was reported as for Group A, only 7% of the students in this group had access to or possessed a computer. The 3% access to either e-mail or internet facilities further emphasises the fact that online education is at present just a far-off dream to these students. (The indication in Figure 2 that

fewer than 40% of the respondents in either group had their own room in which to study may be regarded as irrelevant to this discussion, but clearly indicates the unfortunate socio-economic position of many students in a developing community).

Thus, despite the funding being pumped into the provision of new online education programmes by South African (and international) institutions of higher education, this type of education is not likely to meet the demands of this country. Accessibility, or rather the inaccessibility of technology to a large proportion of the population is the major issue to be addressed in this regard. The quality of the network infrastructure necessary for effective delivery of online learning opportunities seems to be a secondary issue in the context of the enormous backlogs.

Given the appropriate circumstances, however, information communication technology clearly does have the capacity to reach large numbers of learners with the assistance of a few well-qualified tutors using materials developed by specialists. It does not require an internet connection to each household, because a properly equipped learning centre within walking or cycling distance from every household can serve a similar purpose. It should also be borne in mind that, at present, the prerequisite of universal access can be met by very few countries. Epistemological access is a further consideration (cf Lelliot *et al* 2000: 45). Physical access is clearly not sufficient. At the very least, epistemological access to online education requires students and their teachers to be computer literate as well as conventionally literate and numerate.

In this context it is hardly surprising that the demand for a guarantee of the quality of courses and programmes offered at a distance, and especially those delivered online, is steadily growing.

3. Indicators of quality online education

A study supported by the American Association of Higher Education, the Education Commission of the States, and the Johnson Foundation surveyed 50 years of research on educational practice. On the basis of that study, Chickering & Gamson (1987) summarised seven principles of good practice in undergraduate education, concluding that the

most effective undergraduate learning was active, co-operative, and demanding. The principles are intended as guidelines to be used by academics, students, and administrators to improve teaching and learning. Good practice thus:

- encourages student-faculty contact
- encourages co-operation among students
- encourages active learning
- gives prompt feedback
- emphasises time on task (effective time management)
- communicates high expectations, and
- respects diverse talents and ways of learning.

Since these seven principles of good practice were created in 1987, new communication and information technologies have become major resources for teaching and learning in higher education. Many educationists are of the opinion that if the power of the new technologies is to be fully realised, they should be employed in ways consistent with the seven principles (cf Chickering & Ehrmann 1996; Polyson *et al* 1996; PBS Adult Learning Service 1997a & 1997b; Spear & Spear 1999, who along with other authors describe some of the most cost-effective and appropriate ways to use telecommunication technologies to advance the seven principles).

In the USA, participants in the Telelearning 1997 workshop (PBS 1997a) discussed the application of the seven principles to the field of online/distance learning in an attempt to enhance the quality of this type of learning. Table 1 provides a summary of some of the suggestions they listed as pedagogical standards of good practice in this regard, with an additional eighth principle directly related to technology (PBS 1997b). Ensuring quality in online distance education has also been a critical issue for fifteen of the states in the western USA. The Western Interstate Commission for Higher Education (WICHE 1999) developed a framework (Principles of good practice for electronically offered academic degree and certificate programs) that has attained widespread acceptance across American higher education (Broad 1999: 21).

Table 1: Pedagogical standards of good practice in online education

Principle	Pedagogical standards
1. Encourage student-tutor contact	• Inform students of expected e-mail response times • Establish a virtual office hour • Be pro-active and follow up on any student who is not participating • Outline the protocol for e-mail, voicemail, etc
2. Encourage student co-operation	• Design activities that promote co-operation • Set parameters and organise the course in such a way as to encourage co-operation • Use techniques that foster student co-operation (peer reviews, group projects, small groups)
3. Encourage active learning	• Ask students to identify URLs that enhance learning • Use an electronic forum • Encourage the exchange of phone numbers or addresses for the formation of study groups or other group activities • Set up group activities, especially in interactive TV mode
4. Give prompt feedback*	• Respond with daily e-mail: 1. answers to questions 2. comments about telelessons they are watching 3. links with student study groups • Return tests and papers within a week • Hold virtual office hours (online or by phone)
5. Emphasise time on task (effective time management)	• Give students something to respond to for each class or lesson • Post notes from each reading; expect students to respond • Use open-ended questions to encourage dialogue • Build in a reward system of points for student work • Create relevant and practical assignments • Give specific directions, timelines, submission dates • Make it fun • Allow for acceleration of pace • Include opportunities for students to teach other students
6. Communicate high expectations	• Syllabus should include course goals, performance objectives, examples of student work • Include information on how to contact the instructor • Instructors: 1. need to maintain high standards 2. should set an example 3. should convey enthusiasm for the subject 4. should pass on their passion for the subject 5. must keep in contact with students in order to convey enthusiasm
7. Respect diverse talents and ways of learning	• Recognise, respect, and reward creativity • Set objectives but allow alternatives • Understand differential pacing

Principle	Pedagogical standards
8. Make effective use of technology	• Use software or technology consistently throughout campus • Use consistent course designs • Avoid using multiple competing technologies • Provide a help desk (seven days, 24 hours) for all technologies • Provide for flexibility in the use of technology

*Several delegates at the CITTE Conference at the University of Port Elizabeth in June 2000 emphasised the value of an e-noticeboard for the enhancement of daily contact.

Chickering & Ehrmann (1996: 1-2) describe some of the most cost-effective and appropriate ways to use computers, video, and telecommunication technologies to advance the seven principles of good practice. According to them frequent student-educator contact is the most important factor in ensuring student motivation and involvement. Electronic mail, computer conferencing and the World Wide Web enable students and educators to converse and exchange work much more speedily than before. Total communication increases and, for many students, the environment seems more intimate, protected, and convenient than the more intimidating alternative of face-to-face communication with faculty. Communication is also facilitated for students or instructors (or both) who are not native speakers of English; each party can take more time to interpret what has been said and to compose a response. With the new media, participation and contribution by diverse students become more equitable and widespread (Chickering & Gamson 1987: 2).

Ragan (1999: 1) notes that time, location and the pace of study are becoming less important as indicators of quality instruction. He holds that the delivery system is secondary to the type of interactions and intellectual engagement that the system provides for both the learner and the teacher. The reader is also referred to this author's valuable "emerging set of guiding principles and practice for the design and development of distance education" which is meant "to encourage all of us to focus on the true mission of any educational system, creating an educational event that causes a marked and sustainable change in behaviour in our learners". This set of principles, presented under five main categories, provides extremely valuable insights and guidelines for all those now confronted with the provision of education by means of new communications media. The emphasis on the learner and his/her educational experience bears a clear resemblance

to the seven principles of good practice and adaptations thereof, but can be regarded as more extensive in several respects. Some of these have direct reference to the South African educational scene.

In his category "Assessment and measurement", Ragan (1999: 3-4) states that assessment and measurement strategies should accommodate the special needs, characteristics and situations of the distance learner. Similarly, the category "Instructional media and tools" states that the design of programmes should reflect the diversity of potential learners: "The unique contexts in which learners live and work may influence the way they think about and use instructional media" (Ragan 1999:4). This diversity refers, *inter alia*, to a learner's academic preparedness, learning style, experience, gender, age and ethnicity, as well as his/her career and personal goals.

Good guidelines for the facilitation of distance learning computer science students are provided by Wilson & Whitelock (1997). In the South African context, the reader is referred to the quality standards for distance education drawn up by the Directorate for Distance Education, Media and Technological Services of the Department of Education (DOE 1996). These standards/guidelines may need some adaptation and adjustment for application in the typical Web-based education situation.

The importance of a student profile in an accountable distance education system, in particular with regard to support and counselling, needs to be acknowledged (cf Beneke 2000).

Chickering & Ehrmann (1996: 5) are of the opinion that principles/standards/criteria cannot be implemented by technophiles alone, or even by academics alone. Students need to become familiar with the principles and be more assertive with respect to their own learning.

But what are the students' views, however unsophisticated, on the issues of the quality of and access to online education?

4. Student reaction to the issues of quality and access

In the surveys undertaken at the Free State Technikon, students were also asked to respond to the following open-ended questions:

- What are your views on the possibility of computer studies offered at a distance by means of the internet/e-mail?

- What should be done to ensure that the quality of education is good when it takes place by means of e-mail/internet?

Most students reacted positively to the possibility of online education, but great concern was expressed regarding the lack of access to computer equipment and the cost involved. The following comments summarise the general feeling in this regard and also give an indication of the delicate balance between quality and access:

- The internet seems to be the most advanced method of communication with the outside world. However, it's unfair for disadvantaged people who don't have access to computers.
- I think it's great; students won't have to miss classes for any reason and they can study in the comfort of their homes.
- E-mail/internet is still expensive, thus the majority of us are unlikely to be able to afford this way of learning.
- It's a blessing to those who have e-mail, but a disadvantage to those who haven't.

The various responses to the two questions showed a remarkable correlation with the issues addressed in the eight principles (see Table 1). The lack of an "ever present" lecturer was of great concern. The principles/criteria of frequent student-tutor contact and prompt feedback are clearly relevant here:

- A student needs an ever present/physical facilitator. It doesn't help at all being given duties through the internet.
- I don't think it's good because not all of us can understand things without having them demonstrated.
- At least once or twice a month a student should have a contact session with a lecturer.
- Lecturers should be available at all times to assist students with problems.
- Students must be given a lecture once a year to prepare them for the examination.
- Assignments and tests should be set on a regular basis to see if students understand.

The concerns and suggestions of the student respondents can also be linked to most of the other principles for quality online education (see Table 1). The following comments emphasise the importance of the principles related to co-operation among students, active participation, effective time management and the recognition of diverse talents, backgrounds and ways of learning:

- I think this will cause a slight problem because most of us are used to studying where there's a test/exam. My point is that studying at our own pace will cause most of us to fail.
- The language that is used must be understood by everyone.
- Study in your own time and be sure to have enough time to prepare and do assignments properly.
- I think it's very disadvantageous because students don't have study groups to discuss problems — they are on their own with no lecturer to solve their problems as they arise.

There is an overall indication that careful planning, research, and guidance are considered very important ("They should be sure that they do research before they begin, so if they were in the students' shoes, they would understand" and "It takes dedication from both students and lecturers, and proper guidance"). The importance of technological literacy among tutors as well as students is also touched upon ("This will be advantageous to the students only if they are computer literate" and "Lecturers should be very motivated and should have more experience about computers and try to make it more practical").

The aspect of assessment, which is not directly addressed in the eight principles of Table 1, is mentioned ("This way of learning does not guarantee tests and examinations where students will not copy"). And to illustrate the surprising insight of students, the aspect of quality assurance or control is also brought to the fore ("The senior lecturers should ensure that this function is offered properly, by means of inspection").

Finally, the students offer a word of wisdom that perhaps holds the key to any debate on the issue of quality in South African higher education: "All people must be given a chance to know more, also about computers. Thanks for requesting our views". This comment

clearly conveys the message that quality online education cannot be isolated from the responsibility of institutions to provide a much larger proportion of their student populations with access to new technologies. Balancing quality and access may be seen as a major challenge to any institution which strives to offer online education. This comment also alerts us to the fact that the student as a learner is the most important role-player to consult when the quality of any mode of tuition is to be assessed.

5. Conclusion

This discussion provides a clear indication that institutions the world over are searching for ways to improve the quality of online education. The effort already made in formulating realistic principles or standards of good practice provides proof. The customisation of existing principles to local needs for use in the design and provision of new online programmes poses a major challenge to institutions in South Africa. Institutional policies in respect of learning resources and technology support need to give high priority to user-friendly hardware and software as well as to communication vehicles that help educators and learners use technologies efficiently and effectively. It will be necessary to invest in professional development for educators as well as to provide for the adequate preparation and support of learners if their full learning potential is to be realised.

It will also be appropriate for legislators and benefactors to ask whether institutions are striving to improve educational practice in ways consistent with indicators such as the seven/eight principles of good practice. Much depends on the answer.

There also seems to be agreement that higher education institutions will need to make adjustments to their academic structure, to their methods of teaching, and to their systems of delivery in order to meet new challenges. The issue of quality seems to be one of the major challenges. Rigidity and lack of innovation can be seen as major threats to quality in individual educational institutions and the education system at large.

South African higher education has realised the need for quality assurance and control in teaching and research following the para-

digm shift away from the fragmented education system of the past towards a more integrated system designed to eliminate inequalities. With the move towards resource-based learning and flexible delivery, the format of learning materials will have to reflect transformed approaches. The nature and structure of learning programmes and materials will have to meet the demands of the NQF/SAQA and will have to be versatile enough for use in distance, semi-distance and contact tuition. Quality assurance measures, as well as new technologies, need to be provided. Ultimately, student learning must be optimally facilitated. This applies to all South African institutions of higher education, and even more so to distance education in all its variations.

But, at present, online education in South Africa will not easily pass the test. Accessibility, or rather the inaccessibility of technology to a large proportion of the potential student population is the major issue to be addressed in this regard.

Under appropriate circumstances, however, online education clearly does have the capacity to reach large numbers of learners. In agreement with the views of Beneke (1998: 81), we are thus of the opinion that issues of quality and access should not deter South Africa from moving with the technological times. The country's survival and progress can only be facilitated if educators are open to innovation and change. But, in choosing the online option, we should never lose sight of the focal community, the learners and their degree of access. Institutions must come to terms with the changing demographics of student populations and make this the driving force behind the design of a system for online/distance education programmes. They should promote lifelong learning in such a way that their endeavours do not alienate their potential consumers. In the words of Duin (1998: 3), this mission requires that "our programs, our partnerships, and our teaching be evaluated not by the number of our publications but by providing access to our resources, not by the number of Web sites we display but by the quality of our exiting students". This is clearly a delicate balancing act!

Bibliography

BECHER T

1999. Quality in the professions. *Studies in Higher Education* 24(2): 225-35.

BENEKE P

1998. Students' technological access to open learning in a historically disadvantaged institution. *OLiSA Review* 1998: 74-83.

2000. The importance of a student profile in an accountable open learning student counselling model. Unpubl M dissertation. Pretoria: Vista University.

BROAD M C

1999. The dynamics of quality assurance in on-line distance education. <http://www.usq.edu.au/electpub/ejist/vol3no1/contents.htm> (accessed 19 January 2000).

CHALKLEY B, E FOURNIER, D HILL & B ATEN

1999. Geography teaching in higher education: quality, assessment and accountability. <http://www.chelt.ac.uk/el/philg/gdn/hawaii/quality.htm> (accessed 28 March 2000).

CHICKERING A W & S C EHRMANN

1996. Implementing the seven principles: technology as lever. <http://www.aahe.org/technology/ehrmann.htm> (accessed 28 March 2000).

CHICKERING A W & Z F GAMSON

1987. Seven principles for good practice in undergraduate education. <http://www.hcc.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/i/princip.htm> (accessed 28 March 2000).

DEPARTMENT OF EDUCATION (DOE)

1996. *A distance education quality standards framework for South Africa*. September-December 1996. Pretoria: Department of Education, Directorate: Distance Education, Media and Technological Services.

DUIN A H

1998. The culture of distance education: implementing an online graduate level course in audience analysis. <http://ehostweb6.epnet.com/fulltex...%20distance%20education&fuzzyTerm=> (accessed 30 September 1999).

LELLIOT A, S PENDLEBURY & P ENSLIN

2000. Promises of access and inclusion: online education in Africa. *Journal of Philosophy of Education* 34(1): 41-52.

LJOSA E

1995. Quality assurance issues in European distance education. <Wysiwyg://bodyframe.main.2/http://ehostweb6.epnet.com/fulltext.asp> (accessed 20 September 1999).

PBS ADULT LEARNING SERVICE
1997a. Standards of good practice for teaching via distance learning: Standards. <http://www.pbs.org/als/frn/standards.htm> (accessed 28 March 2000).

1997b. Standards of good practice for teaching via distance learning: Principles of good practice. <http://www.pbs.org/als/frn/principle.htm> (accessed 28 March 2000).

POLYSON S, S SALTZBER & R GODWIN-JONES
1996. A practical guide to teaching with the world wide web. <http://www.umuc.edu/iuc/cmc96/papers/poly-p2.html> (accessed 28 March 2000).

RAGAN L C
1999. Good teaching is good teaching: an emerging set of guiding principles and practices for the design and development of distance education. <http://www.educause.edu/ir/library/html/cem9915.html> (accessed 29 September 1999).

SAKE
2000. Suid-Afrika flink voor met internetgroei in Afrika. 10 Augustus 2000: 5.

SMIT J, A C WILKINSON & J BÜCHNER
2000. Quality control vs. academic freedom in the compilation of learning resources: is a choice implied? *South African Journal of Higher Education* 14(2): 183-89.

SOUTH AFRICAN INSTITUTE FOR DISTANCE EDUCATION (SAIDE)
1999. Introduction to the telematics for African development consortium. <http://www.saide.org.za/http://www.saide.org.za/>(accessed 16 February 2000).

SPEAR R & M H SPEAR
1999. Standards of good practice for teaching web-based distance learning courses. Paper presented at the Millennium Minds Conference, Cape Town, 29 Sept-1 Oct 1999.

WESTERN INTERSTATE COMMISSION FOR HIGHER EDUCATION (WICHE)
1999. Balancing quality and access: principles of good practice for electronically offered academic degree and certificate programs. <http://wiche.edu/telecom/projects/balancing/principles.htm> (accessed 4 February 2000).

WILSON R E & C J MEADOWS
1998. Tele-Teaching: Australia's competitive question. *Journal of Global Information Management* 6(1): 15-26.

WILSON T & D WHITELOCK
1997. Facilitation of on-line learning environments: what works when teaching distance learning computer science students. <http://panizzi.shet.ac.uk/tom/information_research/paper33.html> (accessed 29 September 1999).