THE DYNAMICS OF QUALITY ASSURANCE IN ON-LINE DISTANCE EDUCATION[1]

Molly Corbett Broad, President
The University of North Carolina
mbroad@ga.unc.edu

The social and economic importance of higher education has long been recognized throughout the world. However, the rapid advance of technology continues to transform the global economy into a knowledge economy, further emphasizing the essential role higher education plays in the economic viability of individuals, companies, and countries. As higher education's stature grows, we should keep in mind that its increasing importance offers both opportunities and pitfalls. To capitalize on the former while avoiding the latter, we must understand where higher education stands in relation to the rest of the world and the "knowledge revolution."

Like its global counterparts, the American higher education sector is struggling to navigate a sea of change that has stimulated broad interest in distance education. The explosion of computing and telecommunications technologies has generated particular interest in distance education enabled by information technology (IT). The dynamics of this increasing interest can be understood through:

- The forces driving the rise of distance education in the United States,
- The key role of quality assurance in supporting or inhibiting that rise, and
- The directions quality assurance in on-line learning might take as it continues to evolve.

What's Driving the Rise of Distance Education in the U.S.?

Dramatic projections for enrollment growth:

Public university systems throughout the United States are projecting dramatic increases in enrollments over the next decade without commensurate increases in public funding. Children of the post-World War II "baby boom" generation have formed an "echo boom" of elementary and secondary enrollments that will translate into a major increase in higher education enrollments over the next ten years. Nationwide, the annual number of high school graduates is expected to increase from approximately 2.45 million in 1997-98 to 2.87 million by 2007-08, roughly a 17% increase over ten years. The 2007-08 figure of almost 2.9 million high school graduates will represent an all-time high, surpassing the previous peak reached during the late 1970's. After peaking in 2007-08, the number of annual high school graduates is projected to decline only slightly over the rest of the decade; by 2011-12, projections indicate that the number of annual high school graduates will be less than 3% lower than the previous historic high of

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[1] This article is based on a presentation made to the Standing Conference of Presidents (SCOP) of the International Council on Open and Distance Education (ICDE) on September 14, 1998, in Queensland, Australia. The slides from that presentation are available through the ICDE website at http://www.icde.org/AboutICDE/SCOP/SCOP.html.

1978-79.[1] The impact on American colleges and universities will be profound, with higher education enrollment growth at levels not seen since the "tidal wave" of the 1960's and 1970's. For example, at the University of North Carolina, we are expecting annual headcount enrollments to grow by almost 30% between 1997 and 2007. UNC would have to add roughly four or five "average-size" campuses (in a system currently encompassing sixteen campuses) to accommodate the expected growth in traditional ways. Given the other demands on state funds, such as needs in elementary and secondary education, this isn't likely to happen.

The growing demand for higher education from nontraditional sources:

Meanwhile, the growing importance of postsecondary education to one's economic prospects, driven in no small measure by the information technology revolution sweeping America and the world, is spurring increased enrollment demand from adults already in the workforce. In a national survey conducted by Washington State University's Social and Economic Sciences Research Center (SESRC), large percentages of Americans surveyed, regardless of income, had recently pursued additional education, with over 80% of respondents indicating that such education was "probably " or "definitely" important for career success.[2]

Have you had any work-related training or education in the last three years? (Responses by Income Level)	
Income	*Percent "Yes"*
<$20,000	72%
$20-39,999	83%
$40-59,999	85%
$60,000±	93%

When segmented by age, comparable percentages of those surveyed, even respondents at or above retirement age, had recently participated in work-related training or education; significant percentages had also been encouraged by their employers to get more education, with even one-quarter of respondents at or above retirement age having received such encouragement.[3]

Have you had any work-related training or education in the last three years? (Responses by Age)	
Age	*Percent "Yes"*
18-29	90%
30-39	80%
40-49	82%
50-64	76%
65±	46%

Similarly, regardless of current level of education, large percentages of those surveyed had recently pursued work-related training or education, with roughly half of those possessing bachelor's or master's degrees having been encouraged by their employers to seek additional education.[4]

Have you had any work-related training or education in the last three years? (Responses by Education Level)	
Education Level	*Percent "Yes"*
<High School	58%
High School/General Equivalency Degree	73%

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[1] WICHE and The College Board, *Knocking at the College Door*, February 1998, p .9.
[2] Don A. Dillman, James A. Christenson, Priscilla Salant, and Paul D. Warner, "What the Public Wants from Higher Education: Workforce Implications from a 1995 National Survey," Social & Economic Sciences Research Center, Washington State University, November 1995, pp. 13-14.
[3] *Ibid*, pp. 14 & 17.
[4] *Ibid*, pp. 15 & 17.

Some College	87%
Bachelor's Degree±	94%
Master's Degree±	98%

These figures do not constitute firm projections of the increase in higher education demand from persons already in the workforce, but they do provide us with some feel for the potential size and scope of that demand. Therefore, they give us some indication of its potential impact on American higher education.

These "non-traditional students" are generally older and already dedicated to family and career. Therefore, they are most in need of educational opportunities that are highly flexible in terms of time and place of instruction. Ideally, they most likely would prefer to participate in courses and other educational opportunities from their homes, businesses, or nearby sites in their local communities. They would definitely prefer to pursue their coursework on their own schedules, as opposed to having to try and fit their lives around an institution's schedule. However, such students also share some common needs with traditional on-campus students. They require similar academic support services, such as access to the learning resources and research support generally provided by campus libraries. They, too, need academic advising, interaction with faculty mentors, and access to career services, financial aid counseling, and the registrar's and bursar's offices. However, they need flexible, convenient access to these services on par with the flexibility and convenience they demand in the delivery of academic programs. As a result, many higher education and governmental leaders in the United States are now looking to distance education, including the attendant support services, as a major option for meeting these challenges.

The information technology revolution and the need for digital literacy:

The pace of technological change and its impact on the American and global economies are increasing exponentially:

- Between 1997 and 2002, the number of computers worldwide is estimated to increase from 200 million to 500 million.
- Data traffic is projected to exceed voice traffic on global phone systems by the year 2000.[5] (And by some estimates it already has!)
- It has been estimated that, in 1996, 65% of all workers in the United States used information technology in their jobs
- By the year 2000, that figure is expected to be 95%.[6]

Demand for additional higher education by adults already in the workforce is being driven in large part by the impact of the information technology revolution on the workplace and the economy as a whole. The dramatic impact of information technology's proliferation throughout the economy has driven more and more workers to seek additional education in order stay current with the technological demands of their existing careers, or to prepare them for seeking new ones. For example, MIT's Nicholas Negroponte has stated that, in his opinion, universal digital literacy has largely been achieved among children age 14 and under in the United States. He believes that senior citizens, who are more likely to have had the time to explore new technologies such as the Web, constitute the next most digitally literate group. However, he defines the large group in between -- essentially those running the country -- as the "digitally homeless." These are the working professionals who are increasingly required to establish and maintain information technology knowledge and skills in order to perform successfully in their daily work activities, but whose work and family commitments prevent them from accessing traditional learning opportunities.[7]

[5] Kevin Kelly, "New Rules for the New Economy," *Wired*, Sept. 1997, pp. 2-3 (Electronic Editorial Reprint Version).
[6] Twigg & Oblinger, The Virtual University: A Report from a Joint Educom/IBM Roundtable, Educom, 1997, p. 3.
[7] Nicholas Negroponte, *The Changing Technological Environment*, speech to the 18th ICDE World Conference, The Pennsylvania State University, University Park, PA, June 2, 1997.

Negroponte's supposition implies that American universities will have to serve two distinct populations:

1. a digitally literate traditional student population expecting educational experiences that will utilize their well-developed information technology capabilities, and
2. a nontraditional population needing to acquire information technology knowledge and skills to sustain and advance their careers.

Meeting the needs of both populations will require effectively incorporating information technology into the teaching and learning process; in the latter case, information technology may become the primary mechanism for teaching and learning at a distance, at least in the U.S. Continuing rapid technological advances are providing new ways of delivering higher education (e.g., web-based asynchronous delivery with e-mail and chat rooms; web-based synchronous delivery may soon be possible as the availability of bandwidth grows), which may offer opportunities for providing the flexible access to education and services that nontraditional students require. Meanwhile, for the digitally literate next generation of on-campus students, we must be prepared to teach these students with more than a blackboard and a piece of chalk; our classrooms and learning environments must be technologically enabled to accommodate the multiple learning styles and multimedia learning paths to which they will be accustomed.

The expanding marketplace of higher education/distance education providers:

As technology continues to change when, where, and how students can learn, it is also changing who can provide those learning opportunities. American higher education must change because the dynamics of our industry have changed. An increasing number of for-profit universities (e.g., University of Phoenix, DeVry Institutes, ITT Technical Institutes) are targeting professional and technological education at both the undergraduate and graduate level as their core markets. Moreover, they are moving aggressively to service those markets with student-centered approaches most traditional institutions have yet to meet. Some traditional higher education providers have responded by establishing specialized for-profit or non-profit subsidiaries focused on distance education (e.g., University of Wisconsin's Learning Innovation Center, University of Nebraska's for-profit distance education arm). In some university systems, states, and regions, these new entities have taken the form of "virtual universities," institutions whose sole focus is the delivery of on-line distance education (e.g., Jones International University).

Meanwhile, traditional textbook publishers and software developers are examining how best to enter the fray as producers of technologically supported courses, full courseware products, or complete digital learning environments that enable the distance education activities of current and emerging providers. (e.g., Microsoft, Lotus, Simon & Schuster). Industries and professional associations are also beginning to sponsor programs and comprehensive entities to meet the specific continuing education needs of their workforces or professions (e.g., Michigan Virtual Automotive College, an institution created by the major U.S. auto makers, The University of Michigan, Michigan State University, and the State of Michigan to provide a full range of automotive industry education). Finally, as this latter example demonstrates, partnerships involving any or all of the above hold the potential for adding still further diversity to the U.S. distance and continuing education markets.[8]

The information technology revolution has made this new competition possible by lowering the barriers to entry posed by the capital requirements of a traditional campus, and by enabling new learning environments and forms of service delivery which provide additional bases for competition. It is also allowing a national and international perspective on higher education competition to take hold in the United States, since courses could conceivably be delivered or received "anytime, anywhere." Institutions, their stakeholders and students, and other potential providers are beginning to realize that higher education, both in the U.S. and abroad, stands on the cusp of becoming a truly global *industry* with truly global players. However, we are just beginning to grapple with the implications of that transformation for ensuring the quality of education received in new forms via the new technologies.

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[8] Ted Marchese, "Not-So-Distant Competitors," *AAHE Bulletin*, May 1998, pp. 3-7.

Quality Assurance in Distance Education

As distance education proliferates in response to increases in demand and the number and variety of suppliers, American higher education is struggling with the question of how to ensure that students learning through these means receive the same educational quality as traditional on-campus students, if not better. In considering this question, two factors have come to be viewed as central to assuring quality in on-line distance education (i.e., education delivered via the Internet/World-Wide Web):

❑ the availability of adequate technological, organizational, and market infrastructures to support effective on-line teaching and learning; and

❑ the development of effective mechanisms for evaluating the quality of on-line distance education from a variety of perspectives (e.g., students, colleges and universities, and external stakeholders).

Ensuring the Basic Foundations - Technological Infrastructure:

Multiple technologies are already utilized successfully around the world to deliver instruction to students at a distance, including:

❑ Traditional correspondence/text-based courses
❑ Broadcast/satellite/cable television
❑ Videotapes/CD-ROM's
❑ Internet-based/Web-based instruction.

However, in the United States, much of the recent discussion surrounding distance education has focused on the special characteristics and issues associated with the newest medium – Internet-based/Web-based instruction - especially since that's the model driving so much change in American higher education, and perhaps ultimately throughout the world. In this regard, the first issue to address regarding quality assurance in on-line distance education concerns the network infrastructure necessary for delivery of effective on-line learning opportunities.

For many countries, the lack of network and telecommunications infrastructure across their territories is a major impediment to Web-based instruction. In the United States and other countries where the Internet/World-Wide Web is becoming ubiquitous, the lack of capacity or bandwidth within their computer/telecommunications networks is a major limitation. Truly interactive, multimedia courseware and digital learning environments require a greater level of network capacity and quality-of-service guarantees than the current public Internet can provide. However, the United States should witness dramatic increases in bandwidth availability over the next few years as the lessons learned from Internet2, vBNS, and Abilene make their way to the public Internet, and as public and private organizations work to upgrade the physical infrastructure underpinning the Internet. For countries without a widely developed network infrastructure, rapid deployment of digital satellite systems, such as Teledesic's proposed global satellite-based network, may provide true "anyplace, anytime" networking without expensive investments in an extensive physical infrastructure.

Institutional needs for network and desktop hardware, software, training, and support are also major factors in the potential growth of web-based distance education. These resources are critical to the development of digital literacy across the university community, the integration of information technology into the teaching and learning process, the creation of viable on-line instructional materials, and the formation of a true on-line academic community for distance learning students. The availability of computer technology and network access among the general population, or the degree to which institutions involved in distance education can make those affordably available to their students, also constitutes a fundamental aspect of conducting distance education via the Web.

Thus, the successful delivery of large-scale, effective, and reliable on-line distance education depends heavily on the continued rapid development of overall national and global information technology infrastructures, which include:

- ❑ digitally literate and well-supported users,
- ❑ effective desktop computing capabilities (both hardware and software),
- ❑ further growth in affordable broadband network connections from homes and businesses to the public Internet, and
- ❑ the continued evolution of the Internet into a high-bandwidth global network.

Even give the current limitations of the global information technology infrastructure, many courses and programs are already being successfully offered and completed on-line. These learning opportunities offer us a glimpse of what may be possible on a much broader scale in the near future. They also provide us with test cases for discovering and addressing the unique quality assurance issues related to on-line distance education. However, for us to realize the full promise of Internet-base/Web-based learning, the comprehensive development of advanced personal, institutional, and public information technology infrastructures must continue.

As computers and computer networks become ubiquitous, thereby leading more and more people to pursue additional college-level education in order to stay current with the demands of the workplace, they are also changing the ways in which learning at a distance can take place. The promise of "anytime, anywhere" learning supported by both synchronous and asynchronous technologies has further heightened the attractiveness of distance education to potential American audiences. However, these technologies have also altered the higher education market by allowing traditional institutions to move beyond regional service areas and compete in each other's markets; they have also opened the doors to competition from a variety of new sources, such as for-profit and corporate universities. As on-line distance education continues to proliferate in response to increases in demand and the number and variety of suppliers, American higher education is grappling with how to ensure that students learning through these means receive the same or better educational quality as on-campus students.

Ensuring the Basic Foundations - Market Infrastructure:

Another critical factor that will determine the potential of Internet-based distance education is the course of the developing market for educational software (i.e., courseware) and on-line instructional materials. The U.S. is taking a market-driven approach to developing on-line instructional materials; one example is the IMS process. The IMS consortium was established by the U.S. higher education technology association Educom in February, 1997. (Educom merged with the other major American higher education technology association to form EDUCAUSE in July, 1998.) Through this consortium, many higher education organizations across the U.S. and around the world are working in collaboration with computer hardware and software companies, publishers, and other content developers to create the market infrastructure necessary for stimulating the rapid development of high-quality on-line instructional materials.

A key outcome of the IMS process has been the development of open standards for the development of courseware and digital learning environments. These standards are an essential element of the market infrastructure for digital learning materials because they provide:

- ❑ Mechanisms that ensure courseware developers will receive compensation for their work,
- ❑ Guaranteed interoperability of digital learning materials across hardware/software platforms, and
- ❑ Assurance that products developed by one company or individual can be integrated with those of another whose products meet IMS standards.

Clearly, the continued growth and long-range future of on-line distance education depends on increasing the availability and effectiveness of digital teaching and learning materials. By creating an environment in which the development of high-quality, marketable materials can take place, the IMS project promises to jump-start the large-scale production of courseware and digital learning systems, thus providing another crucial foundation element for on-line distance education.

However, relying on market forces to encourage creativity and volume in the development of courseware heightens the importance of intellectual property issues relative to this new market. In the recent past, higher education institutions ceded responsibility for publishing and disseminating research findings to commercial publishers. Those publishers are now charging university libraries exorbitant subscription prices essentially to buy back access to the research developed by their faculties. For example, the cost of scholarly journals increased 148% between 1986 and 1996, or roughly three times the rate of inflation; the price of on-line databases grew even more rapidly, in one case by over 350% in one year.[9] Colleges and universities who are going to encourage and support their faculty in the development of courseware and other on-line instructional materials must avoid replicating this situation in the emerging market for such materials. Identifying the appropriate model for faculty-university relations in this area is critical not only to faculty and institutions engaged in on-line distance education, but also to the higher education enterprise as a whole. The model developed for faculty-university relations in this area may ultimately be similar to that used in scientific research, in which institutions provide essential facilities and technical support for faculty efforts and share in the benefits generated.

Evaluating Quality from the Perspectives of Key Stakeholders - Outcomes-Based Assessment:

Ensuring the quality of distance education, particularly on-line distance education, includes evaluating the level of learning that students achieve via technology-mediated instruction. It also involves measuring the overall quality of the distance education experience from both the student and institutional perspectives. In fact, these issues are intimately related to two emerging trends in American higher education – a) an increased emphasis on learning outcomes, and b) a renewed emphasis on student needs and the teaching and learning process in institutional missions. Moving to an evaluation of student learning on the basis of demonstrated outcomes assumes that colleges and universities can identify and agree on a common set of measurable course/program outcomes. The process of reaching such agreement will require a broad dialogue within the academy on a number of related questions. For example, what do we mean by the term "outcomes-based assessment?" Does it have different meanings in different contexts? What evaluative systems have to be developed to measure learning outcomes however defined? How do we approach outcomes-based assessment as community so that standards, measures, and results are accepted 1) from institution to institution, 2) across university systems and accreditation regions, and 3) between institutions and regulatory bodies of different nations.

Evaluating Quality from the Perspectives of Key Stakeholders - Interaction in the Teaching and Learning Process:

An oft-quoted statement is that most of the learning process really takes place outside the classroom through faculty-student and student-student interaction, as well as through direct efforts by faculty to mentor students. Many view the success a university achieves in fulfilling its role as a learning community to be one of the key determinants of its educational quality. This perspective poses some critical questions for distance education in general, and on-line education in particular, the answers to which may play an important role in the real and perceived quality of on-line distance education. For example, what features of the learning community can be replicated at a distance? Which differences between campus-based and on-line learning communities matter, either positively or negatively? What level of interaction - either between students or between faculty and students - is desirable, and what level is essential? How might these levels of interaction differ by discipline, and what are the subsequent implications for on-line distance education?

Evaluating Quality from the Perspectives of Key Stakeholders - Academic and Student Services:

In addition to preserving a necessary level of interaction, institutions and programs seeking to deliver Internet-based distance learning opportunities will have to ensure that their on-line students have access to an appropriate level of academic and student support services. Students who are able to take courses "anyplace, anytime" will expect to be able to access academic and other support services in a similar way. Yet the services they receive must be of comparable scope and quality to those available to students on the institution's physical campus. Some key questions regarding this issue include: What is the appropriate

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[9] *Policy Perspectives*, Pew Higher Education Roundtable, ARL, and AAU, March 1998, pp. 1-2.

set of services required by on-line learners and how does it differ from the set needed by more traditional on-campus students? What are the implications of this demand for comprehensive, high-quality Internet-based services for institutions' existing library, academic counseling, career counseling, financial aid, registration, and other services operations? How do we ensure that on-line students are receiving the level and quality of services necessary to meet their needs? What feedback mechanisms must be incorporated into the delivery systems to ensure a focus on students' needs is maintained? What other important issues will have to be addressed to ensure a high-quality learning experience for on-line distance education students?

Evaluating Quality from the Perspectives of Key Stakeholders - External Oversight:

While distance education is well-established in many countries and enjoys widespread acceptance as a high-quality teaching-and-learning option, it has not yet acquired the imprimatur of quality in the minds of many in the United States, including many in academia. However, the flexibility that distance education offers is increasingly in demand in the U.S., both by traditional and nontraditional students who want and need its convenience. State governments, which are the principle sponsors of public higher education in the U.S., are also interested in distance education as a means of providing greater access to higher education, particularly in underserved areas, at what they hope will be a lower cost. Thus, the demand for a "guarantee of quality" for courses and programs offered at a distance, and especially those delivered via the Internet, is steadily growing. All of the stakeholders in American higher education, including the institutions themselves, wish to ensure that courses and programs offered at a distance meet or exceed the level of quality for on-campus instruction. Meeting the overall need for an assurance of quality in distance education presents a myriad of issues that impact the very foundations of American higher education.

In the United States, quality assurance in higher education has largely been the province of voluntary accreditation agencies. Generally, colleges and universities in a particular region have banded together to establish and maintain common standards and mechanisms for:

❑   internal institutional reviews of programmatic and institutional quality, and
❑   external reviews of an institution's programmatic and overall quality by representatives from member institutions of the accrediting body.

The federal government has relied on accreditation in determining institutional eligibility for participation in federal student financial aid programs as well as competitive higher education grant programs. State governments, however, as the primary sponsors of public higher education and the main actors in education policy in general, have also established and maintained state higher education coordinating boards or commissions with varying levels of responsibility for overseeing both public and private colleges and universities within their states. Generally, these boards or commissions have focused on whether institutions meet state standards for financial and operational viability and, in the case of public institutions, whether their program offerings and interinstitutional relationships meet state needs and goals.

The rise of distance education in the United States, and particularly on-line distance education, has blurred the lines between states and regions regarding who is capable of delivering instruction when and where, and with what level of physical presence in a state or region. This has presented a major challenge to traditional regional accrediting bodies as well as state regulators. A whole host of higher education institutions, both traditional and non-traditional, are now able to offer instruction in a jurisdiction without maintaining a physical or legal presence there. Thus, the anticipated rise of on-line distance education has raised doubts about the ability of our existing quality assurance system to function effectively. Can regional accreditation and state regulatory agencies adapt to the quality assurance needs of institutions operating nationally or even globally? Will a national approach to accreditation and/or government regulation of higher education be necessary? What would be the positive or negative impacts of such an approach? These questions, and a host of others, remain to be answered.

What directions might quality assurance in distance education, including on-line education, take in the United States?

The questions and challenges outlined above are leading many to wonder what the future course of quality assurance in American higher education, and particularly on-line distance education, might be. Solid answers are not yet available. However, a few general trends are becoming apparent which may indicate the emerging characteristics of the "new" system. Among them are:

❑   Greater collaboration in policy development across accrediting regions and states;
❑   Continued expansion of the role of media organizations in meeting consumer demand for information regarding quality and price in the higher education marketplace;
❑   Increased emphasis on internal quality review.

Greater collaboration in policy development across accrediting regions and states:

Distance education's reach across jurisdictions has led higher education institutions, associations, accrediting bodies, and state commissions to work together to identify common standards and principles for the development of distance education within their areas. A major example of this has been the *Principles of Good Practice for Electronically Offered Degree and Certificate Programs* developed by the Western Cooperative for Educational Telecommunications, an arm of the Western Interstate Commission for Higher Education (WICHE). WICHE is a regional organization spanning 15 western states, including the west coast of the U.S. Many WICHE states have been at the forefront of distance education in the U.S. Thus, ensuring quality in on-line distance education has been a particularly critical issue for the group. Developed collaboratively by state and higher education representatives, the *Principles* serve as a policy framework to help institutional and state leaders guide the growth of on-line distance education within their jurisdictions. The *Principles* have attained widespread acceptance across American higher education. Other regional groups, such as the Southern Regional Education Board,, have adapted the policy framework to their circumstances. This has provided a common basis for approaching and discussing on-line distance education issues across state and regional boundaries.
(*Principles of Good Practice for Electronically Offered Degree and Certificate Programs* is available on-line at the following address: http://wiche.edu/telecom/projects/balancing/principles.htm .)

The media's role in driving an increased emphasis on internal quality review :

As American higher education (including distance education) becomes a more competitive industry, an increased consumer-driven demand for market information is developing, as demonstrated by the following:

❑   *U.S. News & World Report's* highly influential and widely circulated annual rankings of U.S. colleges, universities, and now graduate/professional programs;
❑   *Time Magazine* and *The Princeton Review's* joint issue regarding "how to select the college that's right for you";
❑   *The Peterson's Guide to Colleges and Universities* increasing production of specific institutional and programmatic guides in response to the growing segmentation of the higher education market.

In response, higher education institutions are feeling increased responsibility for managing and verifying the quality of their offerings to the student-consumer and other potential direct or indirect "purchasers" of their services (e.g., government, business, etc.). This is particularly true as they expand their operations in the distance education arena. If this more consumer-oriented model continues to emerge, and all indications are that it probably will, colleges and universities may find themselves in a position similar to that of other service industries in terms of having to develop and disseminate information regarding the quality of their "services" on a continuous basis. Moreover, this information will have to be made available to potential "clients" in readily accessible forms. In this regard, student satisfaction surveys are already rapidly becoming key instruments in assessing institutional quality to which the lay public responds. Similarly, employer satisfaction surveys are also viewed as potentially valuable information sources regarding institutional effectiveness by both government officials and the constituencies they represent.

A critical question arises, however, regarding the degree to which market-driven indicators or standards for quality assurance will meet the demands of governmental entities for public accountability. Moreover, to what extent can or should such indicators inform discussions of quality among higher education institutions and regulatory bodies? What should higher education institutions be doing separately and collectively to provide effective "consumer" information regarding quality? Insofar as state governments (and through financial aid, the federal government) continue to be the primary sponsors of American higher education, their demands for quality and adequate service delivery within their jurisdictions will play a major role in determining the shape of quality assessment. Higher education institutions, especially public ones, will have to work constantly to strike a balance between the entrepreneurial imperatives of the developing market for on-line distance education and the accountability pressures arising from their public sector roles in education, research, and service.