Online Learning: Creating Systemic Organizational Change in Higher Education

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"The best way to predict the future is to invent it."
Alan C. Kay, Keynote presentation, EDUCOM '88 Conference, Washington, D.C.

During this century, institutions of higher education will undergo drastic changes in response to modified internal and external demands. Effective college and university governance in the 21ˢᵗ century will therefore depend upon the institution's governance system's ability to create change rather than simply react to it. Two innovations that will have a drastic effect on our concept of governance within higher education are technology and distance education, particularly the virtual campus, or the "electronic teaching, learning, and research environment created by the convergence of powerful new information and instructional technologies" (Van Dusen, 1997, p.iii).

According to Twigg and Heterick, (1997, p.2) "developments in information technology and distance learning… challenge many of the assumptions and virtually all of the foundations upon which states and systems of higher education have built their coordinating and governance." Will current administrators be ready to govern their institutions effectively within this virtual environment where the assumptions and the policies have to be re-invented? The answer in part depends upon the university's ability to rethink its governance policies (Twigg & Heterick, 1997).

Balderston (1995) defined governance as "the distribution of authority and functions among the units within a larger entity, the modes of communication and control among them, and the conduct of relationships between the entity and the surrounding environment" (p.55). Throughout history, social, political, and cultural forces have influenced collegiate governance. "Institutions must be responsive to their environments to survive, and the responses made by colleges and universities have had profound effects on their governance structures and process" (Birnbaum, 1988, p.15). Today higher education's foundation of governance, its governing board of trustees established during colonial times, is being further challenged as technology becomes more ubiquitous on college campuses.

The insertion of a new entity within the system of the higher education, such as a virtual campus, will have repercussions within the system as well as those that extend beyond the system to its external environment (Gleick, 1987). The resulting disequalibrium will force further adaptations onto higher education, including changing the university governance process.

It is not possible to predict all of the changes in the governance process that the ubiquitous use of technology and the virtual universities will bring. However, by examining some of the models of future universities, we learn that the "cyberspace university" is just one of several possible models institutions can adopt. Nonetheless, because of

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vast external pressures, higher education continues to pursue online learning and the integration of technology into the curriculum. These actions have resulted in challenges to the process by which higher education is governed.

In particular, questions of intellectual property right have arisen with regards to the ownership of online courses. Similarly, the acceptable faculty workload is no longer clear-cut within a virtual environment, nor are we certain of how to regulate and accredit distance learning. Finally, distance learning has spurred the growth of new collaborations with other universities and businesses as well as the creation of for-profit subsidiaries managed by the universities. All these factors have led to a rethinking of who makes the decisions and by what processes with regard to higher education.

MODELS OF FUTURE UNIVERSITIES

To envision a new system of governance for higher education, we first need to project what a university of the future might look like. Duderstadt (February 4, 1999) offered several new models of the college and university of the 21st century. Included among the nine models Duderstadt presented are:

- *The World University:* some institutions will become more global in character, viewing their marketplaces as the world, and will be funded through international, as well as national or state, funds. Boards of trustees would be comprised of members from a variety of different countries, adding further complexity to the governance process due to language and cultural barriers. Likewise, accrediting bodies would probably synthesize graduation requirements from several countries, so the policies that govern accreditation in the future may bear little resemblance to those we have today.

- *The Creative University:* instead of focusing on the preservation or transmission of knowledge, this university will value the process of creating new knowledge itself. This may require the reorganization of curriculum, graduation requirements, and governance structures, for example, to stress experiences that teach and nurture the art and skills of creativity. This university may also form an alliance with other creative organizations such as the art world or the entertainment industry, and the decision-making process would include those whose value system and thought processes differ from those who currently govern higher education. For instance, in lieu of traditional businessmen on the board, we might find entertainers and artists whose values may go beyond the traditional bottom line.

- *The Divisionless University:* this university will be far less specialized. Instead, it will form a web of structures to provide integration among the disciplines. Here, the traditional organizational chart would be flattened, perhaps by removing the middle managers. Governance without the traditional department chair would certainly be a challenge.

- *The Cyberspace University:* this university will operate as a "knowledge server," like the University of Phoenix. The top governing body at these universities will vary from an administrative board to a consortial representative board (Hanna, 1998).

- *The Adult University:* this university would admit only advanced, academically and emotionally mature students. Those seeking a general education would have to go elsewhere. Students at these universities might have a greater role in the governance process because of their increased maturity and advanced knowledge.

It is unlikely that any university will adopt an exact model from the list above. However, Duderstadt (2000) recommended that educators explore the features presented by each of these models as institutions of higher education attempt to redefine themselves. No matter which model it chooses, a key goal of the future university will most likely be to "change the locus of decisions about educational programs, priorities, budgets, and students in ways that are more responsive to students and their immediate and lifelong needs" (Hanna, 1998, p.75).

EXTERNAL PRESSURES FOR ONLINE LEARNING

Unfortunately, history has shown us that higher education has at times been altered because of external pressures rather than educational imperatives, and this century may offer another such example. For instance, although Duderstadt's (2000) cyberspace university model represents only one of nine possible models for the university of the future, many institutions of higher education feel compelled to pursue that alternative because of the pressure they are receiving from policy makers and the public.

The American Association of University Professors' (AAUP) Report on Distance Learning (1997) provided an excellent analysis of the political context surrounding the current push toward distance learning. The report stated that "despite mixed evidence as to its effectiveness in answering the needs of higher education, the political pressure to implement distance learning continues to grow rapidly across the country" (p.2).

Proponents often cite cost effectiveness and increased access as reasons for the allure of distance learning. As a further rationale for the popularity of distance learning, the AAUP Report (1997) offered the social and economic trends of "new demographic realities, political constraints of state budgetary politics, cultural and lifestyle changes, and basic imperatives of technological development" (p.3).

These trends are easy to explain. Because increases in the student population at the traditional college age as well as at the returning adult level are projected for the future, distance learning offers an alternative to the costly construction of additional buildings. In a like manner, state legislators have subordinated concerns about the quality of distance learning due to their constrained budgets and the higher priority of other local needs. Distance learning also accommodates our emerging need to live life in the privacy of our own homes, thereby providing us more convenience and control. Finally, the powerful pull of technology often overrides any concerns about its viability, and distance learning is no exception (AAUP, 1997).

Thus, despite any reservations they may have, faculties are being compelled to "a practically unquestioned acceptance of distance learning" (AAUP, 1997, p.4). One has to wonder, however, if the history of educational technology will hold true and if educators will soon find themselves being criticized for the failure of yet another technological innovation (Cuban, 1986).

Nevertheless, because distance education has become a reality for many college campuses, an exploration of some of the current issues surrounding the introduction of virtual campuses into higher education will indicate necessary changes in the way higher education is governed. Educators need to face the reality of these changes to maintain sufficient control in their implementation. Once again, we see higher education changing in response to external forces. As a result, the various systems and processes within higher education need to change as well.

INTELLECTUAL PROPERTY: COURSE OWNERSHIP

One of the most frequently cited issues involving online education addresses the ownership of virtual courses. The U.S. Constitution, Article 1, Section 8, Clause 8 states, "The Congress shall have Power…To promote the Progress of Science and the useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." Does that intellectual property right include the professor who creates a distance learning course? At the moment, many universities are struggling to decide that for themselves.

How a university chooses to resolve this issue suggests much about its governance policy. For example, in a spirit of shared governance, the University of Illinois hosted a faculty seminar discussing online teaching and learning, a large part of which centered on virtual course ownership. The subsequent faculty report (1999) posited that all virtual courses should be developed and taught by expert professors in order to ensure the high quality of each course, and that the courses should therefore belong to those professors.

When the knowledge product of a professor is controlled by the administration, the faculty argued, professors lose their autonomy and independence. Any exception to the previously-stated policy could result in the deprofessionalization of academia, such as when a part-time professor is paid to design an online course that belongs to the university or when the university offers an existing online course without an expert professor teaching it (University of Illinois Faculty, 1999). Whether or not the university's board of trustees will choose to follow the faculty's recommendation is not yet known. Furthermore, since there has not yet been any litigation to test the university's right to claim ownership of such courses, higher education has no historical precedence to follow.

The AAUP (1997) explained that the confusion surrounding electronic and digital course ownership could be clarified in three different ways. In some cases, legislative action will be necessary, while in others the collective bargaining process will decide university policy. Or, as in the case of the University of Illinois, university policy could be "arrived at collegially through

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the processes of shared governance" (p.8). In the end, however, the AAUP agrees with the faculty of the University of Illinois in believing that course ownership should reside with the faculty member(s) who created the course.

On the other hand, the Consortium for Educational Technology for University Systems (1997) has suggested another way to resolve the intellectual property right of distance learning courses conundrum. It recommends the reallocation or "unbundling" of the rights associated with copyright as well as the creative sharing or licensing of specific rights. It states, "New models for the allocation of intellectual rights must be considered and designed which anticipate the influence of new technologies on teaching, learning, research and creative activity in American universities" (intro). These new models might also require those responsible for governance at the university to relinquish some of their traditional decision-making authority.

The Consortium for Educational Technology for University Systems (1997) wanted to place the decision-making authority in the hands of the individual university, and Lazerson (1997) agreed to this decentralization. Arguing that much of the current copyright law is shaped by assumptions crucial in commerce but inapplicable to higher education, the Consortium recommended that each institution of higher education should:

- Adopt written policy statements that address ownership for course materials, scholarly articles, multimedia projects, and distance-learning videotapes.

- Adopt principles to determine ownership based on the criteria of creation, control and compensation.

- Establish a framework to allocate or "unbundle" rights associated with new works.

- Provide standard agreement forms to clarify ownership of copyright and the allocation of such rights.

- Specify in writing the person who will own and manage the rights of a project.

- Encourage authors to retain rights to future uses of their works upon publication.

- Provide easier and clearer rights for others to use works owned by the university or its faculty.

Obviously, the issue of online course ownership brought about by the introduction of virtual courses has caused universities to revisit their governance policies. Because of the autonomy they have traditionally enjoyed, faculty members would not be pleased to have their "intellectual property" managed by the university. Yet, the sponsoring university could be in danger of losing valuable profits if a professor sold a competing university a course he developed while he was on the payroll of the first university. Therefore, before developing a policy on online course ownership, all interested stakeholders at each university should discuss their views in order to arrive at a policy that is mutually acceptable.

FACULTY WORKLOAD

In its 1970 Statement on Faculty Workload, the AAUP recommended a standard method of workload measurement using hours per week of normal class meetings. In a virtual environment, however, where preparing a distance learning course could take far more time than preparing a traditional course, a standard method of measurement may be inadequate. Therefore, the AAUP's guidelines of 12 contact hours per week with no more than six separate course preparations per academic year of undergraduate teaching and nine contact hours per week for graduate teaching may be unsuitable for distance education. In addition to the additional course preparation time for distance education, the standard class size issue also needs to be addressed, for without a prescribed limit, distance educators could possibly face classes with thousands of students (AAUP, 1997).

These issues suggest a new form of governance with more faculty involvement in strategic planning may be necessary. Instead of using "management manages and the union grieves" (McKersie quoted in Saltzman & Grenzke, 1999, p. 98) as the collective bargaining guiding principle, faculty members need to replace their adversarial relationship with management with one resembling the cooperation of strategic partners. "Effective representation requires planning and participation in decisions before they are made rather than just formal negotiations over their effects after the fact" (Kochan, Katz, & McKersie quoted in Saltzman & Grenzke, 1999, p.98).

Despite these recommendations, a recent National Education Association (NEA) survey found that less than half its institutions of higher education (49%) negotiate on issues of class size, with only 41% negotiating on changes in the curriculum or new academic programs and 32% discuss allocating the institution's budget (Saltzman & Grenzke, 1999). If faculty members are highly educated professionals who are content area specialists, why isn't their expertise being used more effectively in strategic management decisions that directly affect them?

In reply, Schuster, Smith, Corak, & Yamada (1994) suggested that because of the dichotomy between strategic planning and governance,

these processes often work at cross-purposes within institutions of higher education. They defined governance as a process that involves the faculty and other **internal** groups in deciding how to divide the institution's resources to accomplish its mission. On the other hand, they see strategic planning as a process that involves **external** groups deciding what the mission and overall goals of the institution should be. Because the faculty members are not a part of the external stakeholders in higher education, therefore, they are not traditionally involved in the strategic planning for an institution.

In the governance process that currently exists at most institutions, external stakeholders usually speak through an institution's governing board, which tends to have less understanding and support of the issues from the faculty's perspective (Birnbaum, 1988). In place of this traditional process, Lazerson (1997) recommended the invigoration of the shared governance process as a desired yet difficult goal to achieve. In such a system of governance, presidents would give the faculty "the same hard data they now provide trustees, [engage] faculty in their presidential cabinets, [coach] faculty on how to talk with trustees, and [bring] trustees and faculty together in more honest ways than before" (p.9). Thus, the faculty could be more directly involved in the institution's strategic planning and bring about the necessary reforms to the faculty workload policies.

REGULATING AND ACCREDITING DISTANCE LEARNING

Part of the problem in regulating the new distance learning is that it does not fit the traditional mental model (Senge, 1990) of higher education. In the past, educators could realistically assume that states could dictate to public institutions of higher education within their geographic boundaries. Since distance education breaks down those geographic boundaries, questions regarding its proper regulatory group arise, particularly with the true cyberspace university that may exist without a physical building. Positively speaking, however, technology has created a window of opportunity for regulatory reform (Twigg & Heterick, 1997). Thus, our current policies governing accreditation need to be revised.

Today accreditation is concerned with measuring inputs to instruction (e.g. number of books in the library, hours the student spent sitting in the classroom, etc.). These concepts have little relevance within the virtual university. Instead, Hanna (1998) recommended accreditation measure outputs such as student learning outcomes (see also Barr & Tagg, 1995).

Furthermore, with the possibility of university globalization, standards for quality for university accreditation need to be international in nature, suggesting a transnational alliance among business, higher education, and government, which is exactly what the Global Alliance for Transnational Education (GATE) envisions.

Yet, if we return to Balderston (1995), we find that the first fundamental task of traditional university governance is to assure effective university autonomy and to resist intrusion by political groups. Institutional leaders, therefore, might become quite defensive when discussing increased state, federal, or international regulations for university accreditation, for they may strive to maintain the same proportionality of control in such decision-making processes that they had before the digital age.

THE FEDERAL GOVERNMENT'S RESPONSE TO DISTANCE LEARNING

The Higher Education Amendments of 1998 created the Web-Based Education Commission "to study the growth and accessibility of online education and eventually recommend what action, if any, the government should take" (Carnevale, 2/03/2000, p.2). Although the Commission's final report to Congress is not due until November, its chairman, Senator Bob Kerrey, recently spoke against recommending new laws to regulate distance learning and opted for "other ways of encouraging distance education providers to offer high-quality programs" (Carnevale, 2/04/2000, p.1).

A resounding theme emerging from the Commission's investigation was higher education's desire to regulate itself in its new endeavor of distance learning. For example, a representative of the Council for Higher Education Accreditation argued that existing accreditation bodies could develop new standards to measure the quality of distance learning initiatives (Carnevale, 2/04/2000).

One member of the Commission did, however, request that regional accrediting bodies be responsible for certifying technology and software, thereby simplifying an institution's technology decision-making process. In response, Secretary of Education Riley replied that even though the federal government avoids dictating educational policy, "even the most vocal advocates of states' rights support federal guidelines for technology standards" (Carnevale, 2/03/2000, p.2).

The possibility of federal involvement would bring an entirely new governance structure to higher education. Such centralization of the decision-making process could seriously affect the speed with which decisions are made. Also, the

opportunity for faculty involvement in the governance process is decreased by such centralization.

THE STATE GOVERNMENT'S RESPONSE TO DISTANCE LEARNING

At a recent National Governors' Association meeting, several proponents of distance learning complained that burdensome state regulations were hampering the growth of distance education at state colleges and universities. On the other hand, for-profit companies could offer courses in those same states without any problems, thereby giving the for-profits an unfair advantage. Likewise, the vast variety of state regulations is impeding the opening of the United States Virtual University (Carnevale, 2/29/2000).

Although distance learning proponents are pushing for fewer state regulations, questions regarding out-of-state tuition for distance learning will require new regulations. For example, the Southern Regional Education Board, representing 16 states, will soon vote on whether to set up a lower "electronic tuition rate" for out-of-state students taking online courses. Since the electronic tuition rate will probably be higher than in-state tuition, the Board will also address whether in-state students taking online courses will be required to pay the higher electronic rate (Carnevale, 3/03/2000).

Obviously, the delicate balance between control and chaos and autonomy and autocracy in higher education is currently being tested. If the states decrease their regulations, will the federal government respond by assuming some of that authority? Or will cyber universities be given more autonomy?

The response of several universities to this challenge has been to forge collaborations with each other or with other businesses and industries in creating a virtual learning paradigm. In university/industry alliances, both organizations can exchange information with each other, thereby allowing them to examine and change some of their practices that may be preventing them from succeeding in the changed environment (Hanna, 1998).

The composition of their governing boards may also change as a result of these collaborative ventures. In place of the traditional Board of Trustees, a Board of Directors (in the case of a for-profit university) or a limited liability company (in a university/industry alliance) may govern the university (Hanna, 1998). However, opportunities for conflict are ripe when a governing board with tight coupling to the external business environment attempts to govern a loosely coupled university (Birnbaum, 1988), thereby suggesting that the organizational structure of the university itself may need to become more tightly coupled.

According to the *Chronicle of Higher Education's* Website, some recent university/business collaborations include:

- National Technological University has signed an agreement with Hughes Network Systems to deliver business and computer skills courses through Hughes's DirectPC satellite system.
- Smarthinking, a new company that plans to provide online academic assistance to students in popular undergraduate courses, has started a pilot test of the service for students in selected classes at 15 institutions.
- The University of North Carolina at Chapel Hill and University Access, an online-learning company, have started a program called the Corporate MBA, in which a team of executives from a given company will study together, through both distance learning and in-person classes at Chapel Hill.

In the university/university collaborative arena, Princeton, Yale, and Stanford Universities will probably offer collaborative online courses to their alumni, while Harvard University has adopted a wait-and-see attitude toward this venture. When asked why Harvard was not participating, the Harvard's director of news and public affairs indicated that Harvard had a history of preferring to come in after a new venture had been established. On the other hand, Princeton's provost added that Princeton's trustees "favored collaborative ventures with peer institutions over deals with outside companies" (Carr, 2000a, p.1).

In an interesting twist on collaboration, Cornell University, following the lead of the University of Maryland and Columbia University, has created a for-profit subsidiary to market its online courses. According to Carr

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(2000b), its faculty is most concerned with the rapid pace of the decision-making, a necessary feature of today's technological environment but something quite alien to higher education in general. One wonders, then, how traditional models of governance can continue to be employed if their decision-making processes remain so lengthy.

Hanna (1998, p.92) posits that "traditional universities and national distance education universities will be forced to shed bureaucratic decision-making processes and past operation assumptions." He adds that part of their reformation will include the ability to adapt more quickly. In other words, the external environment will force higher education to evolve its governance and decision-making processes. Similarly, Baldridge and Deal (1983) argued that the external environment is by far the most powerful source of internal change for institutions of higher education.

CONCLUSION AND IMPLICATIONS

In conclusion, higher education will most likely update its governance structure as its funding pattern changes due to external pressures. "Higher education… is in economic trouble and is under pressure from the very trustees who support it to reorganize its budgetary and governance structures." (Lazerson, 1997, p.6). In particular, leaders in higher education will need to change their existing assumptions about course ownership, faculty workload, regulation, and accreditation because of the introduction of the virtual university.

University leaders will also need to be aware of the external pressures toward developing online distance learning programs. Before launching an online program, they should carefully examine their mission statements in relation to their environment and determine if online course delivery will help differentiate their university. These and other decisions need to be considered using a new model of university governance.

At one time public policy vastly influenced funding for higher education, thereby directly affecting its decision-making process. According to Twigg and Heterick (1997, p.11), however, in this century there will be "a shift in the decision-making process away from public policy and toward market-driven mechanisms" because of "the increasing power of the consumer" and "technology's ability to transcend space, time, and political boundaries." If this situation materializes, successful governance in the resultant market-driven mechanism will most likely require a paradigm shift. Decision-makers will

need to become more consumer-focused in order for their institutions to remain competitive.

The Kellogg Commission has also noted the decline of public involvement in higher education and in a recent report called for greater public involvement in higher education. According to the Kellogg Commission on the Future of State and Land-Grant Universities (2000), the public should re-affirm its commitment to higher education by ensuring the passage of the Higher Education Millennial Partnership Act. This act will provide federal funding for increased partnerships between universities and K-12 education and encourage greater collaboration in research between universities and business and industries.

Most importantly in terms of governance, however, the Commission urged the states to eliminate the practice of appointing members to the governing boards of institutes of higher education because of political reasons. The Commission (2000, p.29) explained that "great public institutions cannot provide the intellectual and economic leadership states need if the appointment process for governing boards and senior administrative leaders is riddled with politics and patronage."

Both Birnbaum (1988) and Lazerson (1997) agreed that because the governing boards of most institutions of higher education are comprised of businessmen and women, the boards try to manage the institution as if it were a business, which is contrary to how most educators feel the institution should be run. The university has no bottom line to be measured; therefore, any attempts to use the latest business managerial fad will likely result in failure (Birnbaum, 2000). Changing the composition of each governing board to better match the existing (or desired) culture and value system of each specific institution should reduce existing governance problems.

"The main question facing educators and policy leaders is not whether higher education will change as a result of the proliferation of information technologies, new market demands, and a dramatically different set of student demographics, but rather, how do we position our institutions to operate successfully in this future environment" (Twigg & Oblinger, 1996, p.15). Keeping abreast of the issues discussed previously and helping to form appropriate state and federal policies to guide these issues should be one of the basic tasks of those involved in higher education governance.

In other words, bottom-up decision-making models need to replace the traditional top-down governance processes, including greater faculty involvement in the institution's strategic plan-

ning process. Because institutions of higher education function as open systems (Birnbaum, 1988), each change to the external environment should result in changes within the internal environments of the institutions, therefore implying that the governance process of the university must be modified as well. We cannot effectively govern the changing institutions of the 21st century using governance systems formed centuries ago.

"If we don't change our organization ourselves, outside interests will change it for us without our consultation or consent" (Levine, quoted in Nickols, 1999). 🌐

REFERENCES

American Association of University Professors, (1997). *Committee R on government relations report on distance learning.* Presented to the Subcommittee on Distance Learning on November 14, 1997.

Balderston, F.E. (1995). *Managing today's university: Strategies for viability, change, and excellence.* San Francisco: Jossey-Bass.

Baldridge, J., & Deal, T. (1983). *The dynamics of organization change in education.* Berkeley, CA: McCutchan.

Barr, R.B., & Tagg, J. (1995). From teaching to learning: A new paradigm for undergraduate education. *Change,* Nov/Dec.

Birnbaum, R. (1988). *How colleges work: The cybernetics of academic organization and leadership.* San Francisco: Jossey-Bass.

Birnbaum, R. (Jan/Feb 2000). The life cycle of academic management fads. *The Journal of Higher Education, 71*(1), 1-16.

Carnevale, D. (February 3, 2000). Software certification is proposed at first meeting of web-based education. *The Chronicle of Higher Education.*

Carnevale, D. (February 4, 2000). Commission's chairman says congress need not regulate distance learning. *The Chronicle of Higher Education.*

Carnevale, D. (February 29, 2000). Governors urged to avoid over-regulating distance education. *The Chronicle of Higher Education.*

Carnevale, D. (March 3, 2000). Southern educators seek cut in out-of-state tuition for online courses. *The Chronicle of Higher Education.*

Carr, S. (March 1, 2000a). Three universities may jointly offer online courses to alumni. *The Chronicle of Higher Education, Distance Education.*

Carr, S. (March 14, 2000b). A for-profit subsidiary will market Cornell's distance programs. *The Chronicle of Higher Education, Distance Education.*

Consortium for Educational Technology for University Systems (1997). Ownership of new works at the university: Unbundling of rights and the pursuit of higher learning. Seal Beach, CA: The California State University.

Cuban, L. (1986). *Teachers and machines: The classroom use of technology since 1920.* New York: Teachers College Press.

Duderstadt, J.J. (February 4, 2000). A choice of transformations for the 21st century university. *The Chronicle of Higher Education, Opinion & Arts.*

Global Alliance for Transnational Education (2000). *Achieving worldwide access to quality education and training.* [Online]. Available: http://www.edugate.org/vision.html

Gleick, J. (1987). *Chaos: Making a new science.* New York: Penguin Books.

Hanna, DE. (March 1998). Higher education in an era of digital competition: Emerging organizational models. *Journal of Asynchronous Learning Networks, 2*(1).

Kellogg Commission on the Future of State and Land-Grant Universities. (March 2000). *Renewing the covenant: Learning, discovery and engagement in a new age and different world.* Washington, DC: National Association of State Universities and Land-Grant Colleges, Office of Public Affairs. [Online]. Available: http://www.nasulgc.org

Lazerson, M. (March-April 1997). Who owns higher education? The changing face of governance. *Change, 29*(2).

Nickols, F. (1999). Technology and the future of education. *On the Horizon, 7*(6), 1.

Saltzman, G.M., & Grenzke, J. (Spring, 1999). Faculty & staff look at their roles in governance. *The NEA Higher Education Journal,* 97-111. [Online]. Available: http://www.nea.org/he/heta99/s99p.97.pdf

Schuster, J.H., Smith, D.G., Corak, K.A., & Yamada, M.M. (1994). *Strategic governance: How to make big decisions better.* American Council on Education, Onynx Press.

Senge, P. (1990). *The fifth discipline: The art and practice of the learning organization.* New York: Currency Doubleday.

Twigg, C.A., & Heterick, R.C. (1997). *The NLII vision: Implications for systems and states.* Written for the NLII-SHEEO Seminar on the Public Policy Implications of the Information Technology Revolution. [Online]. Available: http://www.educause.edu/nlii/key-docs/publicpolicy.html

Twigg, C.A., & Oblinger, D.G. (1996). *The virtual university.* A Report from a Joint Educom/IBM Roundtable, Washington, DC [Online]. Available: http://www.educause.edu/alii/VU.html

University of Illinois Faculty (1999). *Teaching at an Internet distance: the pedagogy of online teaching and learning.* The Report of a 1998-1999 University of Illinois Faculty Seminar. [Online]. Available: http://www.vpaa.uillinois.edu/tid/report/tid-final-12-5.pdf

Van Dusen, G.C. (1997). The virtual campus: Technology and reform in higher education. ASHE-ERIC Higher Education Report 25(5). Washington, DC: The George Washington University, Graduate School of Education and Human Development.