

Editorial

Network Systems: The Emerging Organizational Paradigm

One of the projects that I have been most proud to be associated with is in Brazil, where distance education is used to provide on-the-job training for some thirty thousand teachers in twenty thousand schools in the least developed parts of that country. Apart from the satisfaction of contributing to the enrichment of a huge number of children, their teachers, and their communities, I value this experience as a demonstration of what I have called the *network system* of distance education. In this particular case, the teacher education is provided through a network of local, state, and national administrative and funding resources; several thousand part-time trainers; a score of training institutions and universities, using every technology from printed study guides to online data management; and—here is a key point—*only a handful of full-time employees* to manage and monitor the system (see <http://www.mec.gov.br/seed/proform/Apresentacao.shtm>).

The organizational theory of networks, illustrated with some North American examples, is explained by the Canadian scholars Andrew Woudstra and Marco Adria in a chapter prepared for the new *Handbook of Distance Education* (Woudstra and Adria 2003). Although none of the cases they cite, in my opinion, compare well with the Brazilian project, I want to mention them here and draw attention to Woudstra and Adria's explanation of the network concept. I am doing this because I am convinced that it is the network in some form (or perhaps in a number of different forms) that will be a very important, if not dominant, organizational structure of distance education in the future.

This is by no means a new idea. For my own part, it is an idea I first mentioned, using the term “virtual university” in an editorial nearly a decade ago (Moore 1993). This is what I wrote then:

With the development of the communications technologies of the 1990s—the electronic highways to our homes and workplaces—we are rapidly approaching technical readiness for the virtual university. . . . Such an organization could make instructors anywhere available to students anywhere, and could make courses prepared by any institution available to students anywhere. A student's faculty need no longer be limited to those who assemble in any one place any more than a teacher's students would have to assemble in one place. Students could learn wherever they are located from in-

structional resources wherever *they* are located. No student would need to take instruction from exactly the same teacher as any other; students could have access to teachers from any state or country at any time and in any combination; they could have access to information resources from any state or country at any time and in any combination. Students also could have universal access to advice and guidance. Such a network of learners and teachers returns us to the earliest, most basic concept of “university.” (4–5)

As I look around the United States today, I see that network systems are being developed not only *between* institutions but also *within* institutions. For an institution, the network system provides a middle way between the simple craft model of educational organization in which the professor remains the sole source of content as well as the sole manager of interaction with the students, and the industrial model in which each of these activities is broken into numerous specialties; between the (uneconomically) low student-to-faculty ratio of the former and the very high ratio that is only supportable through total separation of the content specialist from the students. The network system retains many of the benefits of the professor’s traditional role in the campus environment while leveraging the faculty—and other university resources—to support a significant expansion of the numbers of students beyond what can be accommodated in the conventional classes, thus justifying the relatively high investments needed to generate high-quality programming. As in bigger systems, the core of the network system within a university is a small management unit that has responsibilities regarding selection and planning programs, managing course design, training and monitoring adjunct faculty, and monitoring student progress.

To return to Woudstra and Adria (2003), the examples they give of networks include the following:

- Universitas 21, a network of seventeen universities in ten countries that, according to its Web site, “allows member universities to pursue significant global initiatives that would be beyond their individual capabilities” (visit <http://www.universitas.edu.au/governance.html>).
- The Connecticut Distance Learning Consortium, a network including the state’s Departments of Education and Higher Education, all twelve community colleges in the state, and sixteen colleges and universities.
- The Canadian Virtual University, a credit-coordinating arrangement whereby students of six small private and public universities can choose courses and programs from a seamless set of offerings.

- The Global University Alliance (GUA), a network including Canada's Athabasca University, the Rochester Institute of Technology in the United States, the University of South Australia, six other universities, and a commercial partner, NextEd. GUA is focusing on delivering programs in Asia, and the network provides common student support services such as advising, admission, and registry and monitors and manages Internet connections and network reliability.

- Fathom Knowledge Network Inc. (fathom.com), a network whose members include universities (such as Columbia University and the University of Chicago), libraries, and museums (for example, the British Library, the Victoria and Albert Museum, and Cambridge University Press). Via the network's portal, referrals are made to online courses offered by both members and nonmembers.

What is common to these examples? According to Woudstra and Adria (2003), "It is the use of technical and organizational innovations made possible by the wide application of the Internet." These innovations have been differentiated in organizational theory. When applied to distance education, two types appear particularly relevant. These are what Woudstra and Adria, citing Harrison (1994), refer to as *strategic alliance* and *vertical disaggregations*.

In the strategic alliance, participants in a network contribute technological and managerial expertise and capital and share the costs of developing new technologies, spreading the financial risks of entering new markets. Although quite common in the manufacturing industry, in distance education so far, strategic alliances have not made much headway in collaborative design and delivery of the products, that is, courses and programs. Rather, they have been directed toward cooperative marketing of their existing courses.

However, in the distance education field, it is not only the strategic alliance but also the vertical disaggregation form of network that is likely to be of greater interest in the future. Vertical disaggregation is the process developed in the manufacturing industry to deal with shortening product life cycles, by which large firms outsource the production of the various components of their product to smaller suppliers. As in manufacturing, in the knowledge industries too it looks as if vertical disaggregation will become the means of reducing product life cycles and improving efficiency and quality. What that means in distance education is outsourcing some of the design and a lot of the product development of course materials. It means devolving learner support services to local points of contact and specialized services. It means drawing

in instructor resources from wherever they may be located rather than depending solely on the faculty on campus. (I am quite pleased at the time of writing to be involved in appointing an adjunct for one of my U.S.-based courses to teach from his home in New Zealand.)

Networks of this kind are flexible, fluid, and open. The general principle is that institutions, states, or nations (as in the Brazil case) will draw on the best resources wherever they are located, that is, the content experts, instructional designers, the full range of communications technologies, and all the resources needed to provide a learner support system—and configure whatever mixture is needed for a particular program or project on a flexible, open, “mix and match” basis. Only a small management unit is permanent, consisting of specialists in design, technology, and learner support, whose responsibility is to commission, on a contractual basis, the mixture of personnel and other resources needed for each particular project. This permanent, experienced management team is one of two essential requirements for a successful network system; the other is a significant funding resource. The only way the management team can obtain the quality resources needed, on a pro tem basis, guarantee quality, monitor, train, and in every way maximize the human and other resources available is by the power of funding. What this approach leads to, however, is a very versatile, responsive system, producing high quality without commitment to ongoing institutional costs and without the tendency to conservatism that blocs continued innovation within established educational agencies. Above all, it will stimulate partnerships and employ the comparative advantage of each institution in a country or region. As suggested by Venkatraman and Henderson (1998), cited by Woudstra and Adria (2003), such “virtual organizing can result in a living organization that is inter-organizational in scope and that contains customer (student) communities, resource coalitions, and professional communities of practice. Sustained innovation and growth are made possible by virtual organizing.”

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