Book Reviews / Comptes Rendus

Rada, Roy (2001). *Understanding Virtual Universities.* Bristol, UK:
Intellect Books. Pages: 122. Price: £21.42

Reviewed by Bill Egnatoff, Faculty of Education, Queen's University.

Rada sees cultural transmission as the aim of the university and sees
teaching as the principal means of achieving it. The virtual university,
with its digital nervous system to support thinking and collaboration,
extends existing social mechanisms for transmission of accumulated
knowledge. The understanding to which *Understanding Virtual
Universities* contributes is based on: psychological principles of teaching
and learning related to computer-mediated learning; analysis of recent
and current use of information and communications technology in higher
education; the author's broad experience as scholar, teacher, and admin-
istrator; the history of universities and technology; integrated-systems
thinking; means-end analysis and quality control; cost-benefit analysis;
knowledge management; involvement of business and industry in higher
education; and analysis of new market opportunities for universities. The
book emphasizes an approach to using information and communication
technology that is tightly integrated across learning, teaching, and
administration, in a rapidly changing social context.

Roy Rada is an active scholar in the fields of health care information
systems, virtual educational organizations, and workflow management
who holds degrees in psychology (B.A.), medicine (M.D.), and
Computer Science (Ph.D.). He has 20 years experience developing and
using online collaborative learning systems. In addition to teaching

extensively in computer science, he has designed and taught courses directly related to the content of the book—"Hypertext and Office Information Systems", "Groupware and Social Computing", "Virtual Organizations," and "Virtual University." He therefore writes about the virtual university from the practical perspective of architect and user. He addresses managerial, social, and technical issues in order "to help academics take full advantage of IT" (p. 1). Readers interested in understanding in depth the evolving role of the university and its virtual manifestations should consult other sources to complement the practical understanding on which this book focuses.

The chapter on computer-supported learning begins with reference to Bloom's taxonomy of educational objectives, to draw attention towards high-level cognitive development. (Not mentioned, but consistent with Rada's emphasis on adapting instructional method to purpose and to individual differences, is Bloom's notion of "mastery learning" and the argument that with suitable instruction on a topic, everyone can learn something about it.) Learning by doing or project-oriented learning, a constructivist approach, "addresses a higher level of learning than does the memorization approac." (p. 12). Effecting opportunities for such learning requires a cyclic process of needs analysis, specifying intentions, planning, delivery, assessment, and improvement. Means of increasing interactivity in delivery include simulation, the collaborative use of hypertext, intelligent tutoring systems (which model student, domain, and pedagogy to cater to individual learning needs and learning paths), and virtual reality tutors. Rada expects the use of these forms of interactive content to increase in spite of their large development costs. He mentions the mixed results of meta-analyses of the effectiveness of ICT to support teaching and learning. Rada argues that a manufacturing approach to courseware development, based on a product lifecycle, would increase effectiveness. He advocates standards for courseware, databases of student performance information, and expansion of knowledge libraries to support varied learners. Effectiveness is monitored through assessment of learning in relation to intentions. Computer technology is effective in supporting the development, administration, and scoring of multiple-choice tests. Increased development of adaptive

testing and the use of multi-media are broadening the scope of what can be assessed.

The chapter on teaching and class illustrates possibilities for collaboration within the virtual class. Examples are given of approaches to teamwork supported by a variety of forms of groupware: videoconferencing, group hypertext, bulletin boards, multiple channels of communication, and linkage of communication and resources. There may be a new kind of culture emerging in the virtual classroom. Some subject areas are more suited than others for collaborative study. Whatever the form and subject, students need active guidance. Teacher costs depend critically on ways of working with students. Meta-analyses of research studies indicate that courses cannot be distinguished in effectiveness solely on whether they are face-to-face or virtual; other factors of success are more important.

In examining administrative issues, "leaders should always be asking what the infrastructure enables rather than what costs it reduces" (p. 78). Rada sets current developments in the context of the history of the university, which he sees as itself a technology in the sense of a way of knowing and acting in relation to a major social goal. He traces its roots to formal schooling for the elite in Egypt 5000 years ago, universal standardized education in China 2000 years ago, the religion-focused medieval universities with little campus and much freedom, 17th century religious education schools in the New World, the monitorial system and mechanical methods of the industrial age, and the emergence of distance education in the 20th century. He links the development of early libraries to the recent explosive development of the World Wide Web. In the next 30 years, he envisages increasing effectiveness and efficiency, the need for increase in corporate customer education as a requirement for viability, and an increase in private corporations' role in higher education. He mentions a possible split between those who want a physical campus for socialization and those who are interested only in obtaining a degree. He devotes nearly 20 pages to details on a systems approach to running a university and developing its information systems.

Pressure on the university is evident from the examples that are given of alternative means of offering courses. Many of the examples

Rada gives are technical and closely job-related. Large corporations have their own educational and training operations, some of which are large compared with the size of typical universities and so can be supported at a scale that exceeds what a university can invest. Conglomerates such as the Western Governor's University are attempts to create new virtual universities on a large scale. Publishers are trying to extend their reach, using their publishing operations to offer low cost courses that require use of their published materials. Brokers of various sorts offer course catalogues to which institutions can contribute their offerings for a fee. Some organizations attempt to offer courses outside of the university framework while promising instruction from well-known professors at leading universities. Such developments require careful monitoring by university administrators.

The book places more emphasis on what is possible than on what is widely practiced. Almost absent are: a review of the recent uptake of ICT showing the development of the university's digital nervous system, a review of detailed studies and analysis of consequences and appropriateness of innovations, and guiding examples of careful studies on the quality of learning and the integrity of courses and programs. The example given of a "studio" course, a face-to-face/virtual hybrid combining lecture, recitation, and labs, showed a reduction in cost and increase ineffectiveness over several years, but other worked examples are needed to illuminate other pathways.

Rada argues for increasingly sophisticated technological control of educational processes, including standardization of content as was done in health care and the separation of program development, course design, content development, course deliver, and media development into distinct components. His argument begs important questions that he does not address. Is the subdivision and out-sourcing of educational processes eroding education as a public good? Are the new developments anathema to the focus on the individual that underlies "life, liberty, and the pursuit of happiness"? Is self-directed life-long learning threatened by increasing system specificity and control? On the one hand Rada claims, "In a successful virtual organization, the technology fits into the workflow of the people" (p. 96). On the other hand, he indicates that a highly

explicit model is needed to create an effective virtual university. Such a model seems more suited for preserving well-established knowledge than for developing individual potential in a rapidly changing world.

An important aspect of university life to which Rada gives little attention is the preparation of young adults for entering professions such as medicine, teaching, law, and engineering, characterized by exercising professional judgement in situations of uncertainty, ambiguity, and complexity. Central to that preparation is the integration of theory and practice and the collaborative generation and critique of professional knowledge. Rada sees teachers and students as knowledge workers, but gives no analysis of how the virtual university ought to prepare its students to engage fully in the creation of knowledge to guide their work in a society characterized by major shifts in the forms and distribution of labour and wealth.

Rada's systems approach addresses important practical considerations for universities as they become increasingly virtual. His book needs to be coupled with analyses of how the direction and methods he describes affect the role of the university as social critic, as home of uncensored critical inquiry, and as generator of new knowledge to guide human endeavour in an increasingly complex and inter-related world. The cultural transmission model of the university on which Rada bases his discussion provides some guidance to university educators and administrators for keeping afloat while preparing for more radical change.

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Fundación, Santillana. (2002). *Aprender para el futuro: universidad y sociedad.* Madrid: Fundación Santillana. Pages: 211

Reviewed by Patricia Villamor, Universidad Complutense de Madrid.

The Santillana Foundation (Madrid, Spain) annually holds a cycle of conferences dedicated to several educational subjects. In November 2001, the "Monographic Week Santillana" was devoted to the analysis of postsecondary education. This cycle, "Learning for