

Open/Distance Teaching Universities Worldwide: Current Challenges and Future Prospects

Sarah Guri-Rosenblit
The Open University of Israel
saragu@openu.ac.il

Summary: This article examines the current challenges faced by open/distance teaching universities worldwide. The challenges relate to: the change of technological and instructional infrastructures; the move from national systems to a global landscape; the need to find appropriate parties for collaboration in the academic and corporate worlds; the search for quality assurance mechanisms; and the digital divide between developing and developed countries, and between poor and rich. The article concludes with highlighting the leading prospects for open/distance teaching universities.

Keywords: open universities, distance education, e-learning, digital technologies, digital divide

1. Introduction

Around 17 million students currently study in different-type open/distance teaching institutions throughout the world (Guri-Rosenblit, 2010). Universities offering studies through distance teaching methods vary enormously in how the methods were initiated, the target groups they aim to serve, how they are funded, and the kinds of programs they offer. Distance teaching at university level is provided today through a variety of higher education institutions. The most prominent modes of distance teaching institutions until the most recent decades were: the single-mode distance teaching universities, the dual-mode universities that taught concurrently on- and off-campus students (mainly in Canada and in Australia), and the extensions in US universities. Each of these models can be divided into additional sub-groups. The single-mode distance teaching universities, for instance, are treated in the relevant literature as a generic group, but differ from each other in many respects (Guri-Rosenblit, 1999, 2010). Some are operating as huge national universities (like the UK Open University, UNED in Spain, Indira Gandhi University in India), while others were initiated on a provincial level (like FernUniversität in North-Rhine Westphalia in Germany, and Athabasca University in Alberta in Canada). A few adopted an open admission policy (like UK Open University, the Dutch Open University, the Open University of Israel), while most others require the same entry requirements as their conventional counterparts. Some are huge mega universities teaching over a million students (like the Open University of China, Indira Gandhi University in India, Anadolu University in Turkey), whereas others teach a few thousands students. Some operate as online universities (like the Universitat Oberta de Catalunya), while many others are based on printed materials, satellite or television broadcast (like the Japanese University of Air, the Open University of Korea, the National Technology University in USA) etc.

For over 150 years the distinction between mainstream campus education and distance education was clear. By its very nature distance teaching at higher education level was different from teaching at mainstream institutions. Instead of assembling students from dispersed destinations onto one campus, distance teaching institutions have reached out to students wherever they live or wish to study. The early correspondence institutions that started to operate in the

19th century offered academic or professional studies mainly for profit purposes. The establishment of the UK Open University in 1969 and the founding of the large-scale distance teaching universities in many national jurisdictions have marked the beginning of a new era of distance education. Many heralded the new large-scale distance teaching universities as the most conspicuous development in higher education systems in recent decades, as a radical challenge to the concept of a university and as a new kind of university (Garcia-Garrido, 1988; Keegan & Rumble, 1982; Peters, 1983, 1992). The main role of the autonomous large-scale distance teaching universities has been to broaden access to higher education by offering high quality education at a lower cost.

The clear and distinct function of distance education providers for over 150 years is not clear and distinct anymore. The new digital technologies enable any campus university to reach out to students outside its residential campus, and offer online courses to both off-campus and on-campus students. The new technologies have prompted many higher education institutions to enter the 'distance education business' at various levels of experimentation and application. The new technologies have actually turned the dual-mode provision into a leading model in most higher education systems worldwide, as many conventional universities decided to adopt the digital technologies for reaching out to students outside the campus boundaries (Bates, 2005; Bates & Sangra, 2011; Guri-Rosenblit, 2010). An important impact of the new technologies has been the initiation of the blended mode in which face-to-face encounters are combined with online teaching even for campus students. The blended mode can be activated at a course level (some of the lectures are provided face-to-face and some online) or at a program level (some of the courses are taught face-to-face and some are offered online).

Consortia-type ventures that offer online education are another leading model that has developed in recent years. A number of universities join forces, either within national higher education systems or as an international enterprise, to offer a variety of distance teaching programs. Many new consortia were formed in the last decade between universities across oceans.

These new modes of distance teaching are offered to both on-campus and off-campus students, and they have contributed to the blurring of boundaries between conventional and distance education. Many conventional campus-based universities nowadays offer online professional and academic programs.

The blurring of boundaries between campus and distance-based universities has created an identity crisis for many large-scale distance teaching universities. Budget cuts, globalization and privatization trends in higher education, the emergence of many private online providers - have added additional threats to the operation of open/distance education institutions (Bates & Sangra, 2011; Douglass, King & Feller, 2009). This article examines the current challenges faced by open/distance teaching universities worldwide. The challenges relate to: the change of technological and instructional infrastructures; the move from national systems to a global landscape; the need to find appropriate parties for collaboration in the academic and corporate worlds; the search for effective quality assurance mechanisms; and the digital divide between developing and developed countries, and between poor and rich. The article concludes with highlighting the leading future prospects for the open/distance universities.

2. Change of technological and instructional infrastructures

The search for less expensive ways of providing higher education to large numbers of students was one of the main considerations behind the establishment of the large-scale distance teaching universities by national governments in the 1970s and 1980s. The unique operation of the large-scale distance teaching universities has been achieved through the industrial mode of their operation, which was extensively explained and elaborated by Otto Peters (1983, 1994). Peters stressed that

the salient feature of the large distance education institutions was their high degree of industrialization. As in industrial production, the processes of developing materials for learning and teaching at a distance teaching university were modeled by the principles of rationalization, the most important of which were the division and sub-division of labor, specialization, objectification and automation. Since instructional materials of quality are expensive to produce, large numbers of students must use them before the cost per head becomes reasonable and provides economies-of-scale. It entails that distance teaching universities have to be established as large-scale organizations, otherwise their operation and quality may be compromised. John Daniel has introduced the notion of 'mega-universities' that teach over 100,000 students, and their infrastructure and operation differ significantly from smaller-scale institutions (Daniel, 1996). Indeed, many of the distance teaching universities nowadays teach hundreds of thousands of students, and even millions of students, like the distance teaching universities in China, India, and Indonesia.

The new information and communication technologies challenge this very basic formula, as well as the whole organizational and instructional infrastructure of most of the single-mode distance-teaching universities. The reason is that most of the large-scale distance teaching universities lack the appropriate infrastructure and human capital to utilize the new technologies broadly and efficiently (Bernath & Hülsmann, 2004; Guri-Rosenblit, 2010). To utilize the new technologies for online learning and teaching demands a major overhaul of the whole operation of the large-scale distance teaching universities, and a huge investment in setting up a totally new infrastructure for developing and delivering their courses (Guri-Rosenblit, 2010). The new technologies enable the update the study materials on an ongoing basis, and facilitate interaction between students and teachers, and among students. In other words, they alleviate two of the major disadvantages of traditional distance teaching. But at the same time they highlight the importance of interaction with expert teachers in the actual study process. Most of the large-scale distance teaching universities are based on relatively small academic staffs, and cannot afford the hiring of many more academics in order to facilitate student-professor interaction in most of their large courses, studied frequently by thousands of students.

Rumble claimed that online education is more costly than traditional distance education delivery and suggested "that it may prove to be more costly than traditional education" (Rumble, 2001, p. 230). Thus, finding the golden triangle between widening access to higher education, high quality teaching and providing economies-of-scale constitutes an immense challenge for the large-scale distance teaching universities. The industrial mode of distance education has demonstrated that it succeeded at creating an admirable equilibrium between being able to absorb unlimited numbers of students while still monitoring tightly the quality of the study materials and study process at a lower cost as compared to conventional campus universities. Such a balance has not been demonstrated yet for the operation of distance education institutions and systems in the online era.

3. Move from national systems to a global landscape

Globalization is perceived as a key reality in the 21st century, profoundly influencing higher education (Altbach, Reisberg & Rumbley, 2009). Many scholars of globalization claim that the process of globalization "is a force more powerful than industrialization, urbanization, and secularization combined" (Douglass, King & Feller, 2009, p. 7). Universities have operated for hundreds of years mainly in national contexts, and are challenged today to be attentive to both local and global needs and opportunities. Many universities and colleges are nowadays torn between the growing pressure to operate in the global higher education market in order to diversify their funding base by various mechanisms, and their traditional roles of serving national priorities and accommodating mainly the needs of their local surrounding environments.

Distance education has always carried the inherent ability to transcend national borders. However, until the last decades, most of the large distance teaching universities were set up mainly by national governments to cater to the needs of students in national or local contexts. For instance, Athabasca University was founded in Alberta in Canada, and the FernUniversität was established in North Rhine Westphalia in Germany. Gradually have they expanded their operation throughout Canada and Germany. The British Open University, UNED in Spain and the Israeli Open University have operated until lately mainly in their national boundaries. The globalization and internationalization trends have pushed many distance education providers to expand their operation beyond their national boundaries (Guri-Rosenblit, 2011).

Broadening the operation beyond the national borders carries advantages and promises, but also encounters inevitable obstacles and problems. The broader the operation of any given university, the more difficult it is to assure the quality of studies, particularly if the international students are not fluent in English (or any other taught language), and the academic cultures in the foreign countries differ meaningfully from that of the teaching institution. The University of Maryland University College (UMUC) is the largest distance teaching university in the US. Quite obviously, it has to employ different logistics when it reaches out to American soldiers scattered all over the world as compared to teaching non-English speaking populations in countries which lack an appropriate technological infrastructure.

The decision of any distance or campus university to broaden its operation in international markets has a huge impact on the composition of its student population, the scope of its curricula, the role of its academic faculty, the nature of the support systems which it is able to provide, its overall budget, the language of instruction, and the setting of appropriate quality assurance mechanisms. Naturally, each university needs to design the appropriate strategies for operating in diverse international markets, by translating study materials, finding suitable academic staff and establishing appropriate support networks.

Transnational education is one of the potent manifestations of the impact of globalization upon higher education. Boundaries of what were relatively closed national systems are increasingly being challenged by common international trends (Altbach, Reisberg & Rumbley, 2009; Douglass, King & Feller, 2009). Universities are at present engaged in becoming partners in inter-institutional schemes and pushing forward in the drive towards globalization. Students, academic staff and curricula are transferred and exchanged between institutions, and both national and international accreditation agencies purport to ensure promptness in accrediting previous experiential learning and previous academic studies. The transnational phenomenon can be manifested in various organizational forms, such as franchising, branch campuses, joint programs, corporate universities, various international institutions, and various forms of distance teaching and virtual universities.

The number of transnational students that either study abroad for academic degrees or study within extensions and other off-shore initiatives of foreign universities in their own national jurisdiction, has increased dramatically in recent years, and according to OECD projections will total around seven million students in 2025 (Guri-Rosenblit, 2011). Transnational education is regarded both as a threat and as a benefit by different national higher education systems. The positive aspects of transnational education include: the widening of learning opportunities at various higher education levels by providing more choice and flexibility for citizens in any given national jurisdictions; challenging traditional education systems by introducing more competition through innovative programs and advanced delivery methods; helping higher education to be more competitive; assisting in diversifying the budgeting of higher education; and benefiting through links with prestigious institutions, mainly in developing countries. But at the same time, many of new providers of online education offer low quality studies, and operate as bogus universities. Establishing credible quality assurance mechanisms for monitoring the various

study channels of transnational education is of tremendous importance, as will be discussed further on.

4. Collaboration in the academic and corporate worlds

Most large distance teaching universities were established as a product of governmental planning assigned to fulfill national missions (Guri-Rosenblit, 1999). They were born in a period when governments funneled large amounts of public funds into higher education for the building of new institutions and expanding existing ones. This situation has changed drastically in the last decades. The dramatic expansion of higher education led many governments to make drastic budget cuts in supporting higher education institutions. Universities are encouraged today to become entrepreneurial in nature and mobilize funds from the corporate world, philanthropic donors and business-like ventures.

Partnerships, if they are successful, create greater strengths. The basic underlying idea behind cooperation is that the whole may be greater than the sum of its parts. Failure to collaborate results often in an unnecessary duplication of efforts and in ineffective investments of scarce resources. But the fact is that successful collaborations are immensely difficult to achieve and sustain. Many collaborative ventures turn to be more fanfare than reality, and those that have been implemented successfully did not always turn out as intended.

Policy makers in distance teaching institutions should identify and define clearly both their potential competitors and collaborating parties in academia and in the corporate world, within national boundaries and beyond them, in the teaching domain, as well as in research. Successful inter-institutional collaborations of distance education providers have the potential to attract new student clienteles, reduce costs for course development, enhance flexibility, ensure high quality mechanisms, provide richer and better programs, and strengthen the financial basis of distance teaching institutions. Finding appropriate partners and maintaining a fruitful collaboration constitute the most challenging tasks that are crucial for the future of distance education providers. An important area in which cooperation is an imperative for distance teaching institutions relate to the Open Source movement.

The Open Source movement which is based on the technological infrastructure of the Internet provides an illuminating example of collaboration among a growing number of higher education institutions. Clearly, more open access to sources of scholarly information, libraries, and software codes benefit all participants in higher education, but most particularly it benefits teaching and research in those countries that suffer from severe shortages in adequate academic manpower and research facilities. Within the academic community there are currently many initiatives widening the open source usage all over the world (Altbach, Reisberg & Rumbley, 2009; Vest, 2007). The Open Source movement holds special promise for distance teaching providers. It has the potential to reduce costs of developing high quality materials, to bridge over the digital gap between developing and developed countries, and between poor and rich, and assist in assuring quality. No wonder that two UNESCO chairs that were initiated in 2009 on OER (Open Educational Resources) are led by Fred Mulder, the former president of the Dutch Open University, and by Rory McGreal from Ahabasca University, the Canadian Open University.

Furthermore, it seems that distance education providers hold an advantageous position for forging fruitful collaboration with the corporate world. They are more flexible, as compared to traditional universities, to design tailor-made programs for diverse student clienteles, and they should take greater advantage of their inherent flexibility in designing programs suitable for life long learners.

5. Search for quality assurance mechanisms

The industrial mode of distance education and the founding of the large-scale distance teaching universities have given distance education a new legitimacy and established their high quality standards. As aforementioned, the emergence of many new distance education providers in the online era, some of poor quality, threatens the status and reputation of distance education in the global higher education landscape. The new technologies gave rise to a large number of diploma mills, which Daniel Levy called 'Fly by Night Institutions' (Levy, 2008). Noble (2001) cautioned that "Digital Diploma Mills" have introduced a regressive trend in the academic world, which is directed mainly towards a rather old era of mass-production, standardization and purely commercial interests. Only efficient quality control mechanisms can guard against the destructive effects of many diploma mills and false academic institutions (Stella & Gnanam, 2004; Jung, Wong, Li, Baigaltugs & Belawati, 2011).

UNESCO has launched an online portal to guide individuals to sources of information that will help them distinguish legitimate from bogus institutions (Guri-Rosenblit, 2010), but many more efforts should be invested in this domain. In a comprehensive study of Jung et al. (2011) on quality assurance in ten Asian countries (China, India, Indonesia, Japan, South Korea, Malaysia, Mongolia, Philippines, Singapore and Sri Lanka) and one territory (Hong Kong) they highlighted the crucial importance of defining quality assurance mechanisms for distance education providers, as well as outlined the obstacles embedded in such an effort. Their final conclusions were: *These policy directions should be further elaborated in strong research evidence. Future research is needed to investigate culturally considerate QA guidelines and key performance indicators, understand learners' perceptions of distance education quality, look into different QA issues in various forms of distance education, examine the flexibility of a regional or cross-border QA mechanism for Asian distance education, and explore possibilities of linking with other regions' QA frameworks* (Jung et al., 2011, p. 81).

Inter-institutional and inter-regional collaboration is essential for conducting such research and for defining clear indicators for assuring quality of the operation of distance education providers.

6. Digital divide

Today a major challenge in the implementation process of online education mainly in developed countries is to achieve the appropriate integration of the digital technologies into the education systems and institutions, and to ensure that the new technologies become agents of expanded access and equity, and increase educational opportunities for all, not just for the wealthy and the technologically privileged. Digital technologies are of great importance to tertiary education in developing countries: they have the potential to expand access and improve the quality of instruction and learning at all levels, they might vastly broaden access to information and data resources, and greatly assist in professional training. However, most of the developing countries are nowadays still backward, and do not possess the appropriate infrastructure for utilizing the wide spectrum of the digital technologies' capabilities. Many scholars relate to the danger of the digital divide, which the increasing reliance on the digital information and advanced communication technologies has introduced (Mackintosh, 2006; Perraton, 2000; World Bank, 2002; Guri-Rosenblit, 2010; Warschauer, 2003).

Some of the advanced technologies hold the potential to decrease the digital gap, whereas some other technologies contribute to its widening. International bodies and distance education providers should play a prominent role in planning strategies on how to diminish the existing gaps, and follow these efforts by insightful studies. Particular attention should be devoted to the relevant research on distance education institutions and systems in the online era to the potential of the mobile technologies to bridge over the digital divide.

The emerging mobile technologies are thought to hold much promise for providing connectivity to remote areas, particularly in developing countries. Motlik (2008) argued that reliance on e-learning methods does not appear to work well in most developing countries so far, and that the Internet applications seem to be a poor fit for most of the Asian and African countries. Even in the emerging and successful economies of Korea and China, recent reports show that the adoption of Internet-based learning has been fraught with problems: Lack of necessary technology, lack of Internet accessibility, lack of online resources, high costs, and lack of credibility for online degrees (Baggaley & Belawati, 2007). Visser and West (2005) believe that there is also a great promise for the use of mobile phones in education in Africa. However, projects utilizing the mobile technologies today are for the most part in pilot or planning stages, and face many regulatory hurdles (Attewell, 2005; Trucano, 2005; Visser & West, 2005). Many more studies are needed to investigate the effective utilization of mobile technologies, mainly in developing countries.

7. Future prospects

In spite of the immense challenges currently faced by open/distance teaching universities, they hold a huge potential for accommodating growing numbers of diverse student clienteles in the future. By their very nature, open/distance teaching universities can expand widely and be most flexible in catering to the needs of a wide range of a heterogeneous student body. Flexibility can be manifested in various forms and aspects, such as studying anytime-anywhere, employing open admission, using flexible academic calendars, designing special programs for lifelong learning, granting degrees based on competence testing, etc.

Lifelong learning has become today the leitmotif and dominant slogan for most higher education systems worldwide. Lifelong learning forms the cornerstone of the idea of a learning society which encourages its citizens to study on an ongoing basis, and which should result, among other things, in the enrichment of the social fabric and in a collective well-being of any given society. Lifelong learning is based on the notion of part-time studies throughout the whole life cycle. Part-time students are typically adults in full or partial employment and/or having social and family commitments. Distance education is most suitable for providing a rich spectrum of opportunities for lifelong learning.

Open/distance teaching institutions are by their very nature inclined to create a closer interface with labor markets and the corporate world. From the outset, many distance teaching universities have appealed to professional groups, such as teachers, nurses, engineers, technicians, public employees, and have designed a variety of programs geared towards professional upgrading. Several open/distance teaching universities have redefined throughout the years their initial priorities in order to meet changes in labor markets and societal demands.

In many respects, distance education providers are in the forefront of the academic world in launching collaborative ventures and in creating links with business and industry in the areas of training and professional upgrade. This trend is likely to grow in the future. Distance education universities have the potential to offer degree and continuing education programs, tailored to the special needs of particular professions, and to the unique requirements of special firms. Collaboration between universities and the consumer and job markets is highly important for both universities and society.

Bates and Sangra (2011) claim that lifelong learning has become critical for the economic development of the knowledge-based economies, and they predict that lifelong learning for professional update will grow immensely in the future, and will be at least as great as the market for students leaving high school for university and college studies. Students opting for diploma studies and continuing professional education will enroll either as individuals or more likely as members of organized groups, on the basis of contracts signed between the universities and firms and enterprises in the corporate world.

Distance teaching providers have contributed greatly to the increase of social equity in higher education. Through open admission policies or flexible entry requirements the large-scale distance teaching universities have meaningfully widened access to higher education to a wide range of students that otherwise would not have any chance to be admitted to a higher education institution. They have done so without lowering academic standards, by providing a wide range of social and academic support systems. The social role of open/distance teaching universities will increase in the future, most particularly in developing countries.

Distance education providers will accommodate in the future growing numbers of diverse student clienteles. They will enable young high school students to undertake academic studies side by side with their studies in high school, along with much older students. Among older students at least three distinct groups will benefit from studying in flexible higher education establishments: second chance students, professional workers, and adults seeking to broaden their education and to become better acquainted with new fields of knowledge. These three groups of older students display highly distinctive preferences and study habits. Each requires a very different treatment and a broad range of courses and study opportunities. Distance teaching institutions will have to be most attentive in the future in adjusting their curricular planning to fit the diverse range of their varying student constituencies. Many of their students in the future will study continuing education courses, rather than for a whole academic degree.

Unquestionably, international students will constitute in the future a growing component of the student body of distance education providers. Their policy makers will have to pay more attention to ways of taking up and adapting to diverse international markets, by translating study materials, finding suitable personnel to run special programs designed for transnational students. Undoubtedly, open/distance universities will become most noticeable in the future among the leading universities that promote globalization, international networks and collaborative projects in higher education.

8. References

1. Altbach, P. G., Reisberg, L. & Rumbley, L. E. (2009). *Trends in global higher education: Tracking an academic revolution*. Chestnut Hill, MA: Center for International Higher Education, Boston College.
2. Attewell, J. (2005). *Mobile technologies and learning: A technology update and M-learning project summary*. London: Learning and Skills Development Agency.
3. Baggaley, B. & Belawati, T. (Eds.). (2007). *Distance education technology in Asia*. Lahore: Virtual University of Pakistan.
4. Bates, A. W. (2005). *Technology, e-learning and distance education* (2nd ed.). London: RoutledgeFalmer.
5. Bates, A. W. & Sangra, A. (2011). *Managing Technology in Higher Education: Strategies for Transforming Teaching and Learning*. San Francisco: Jossey-Bass.
6. Bernath, U. & Hülsmann, T. (2004). Low cost/high outcome approaches in open, distance and e-learning. In U. Bernath & A. Szucs (Eds.), *Supporting the learner in distance education and e-learning: Proceedings of the Third EDEN Research Workshop* (pp. 485–491). Oldenburg: Bibliotheks- und Informationssystem der Universität Oldenburg.
7. Daniel, J. S. (1996). *The mega-universities and the knowledge media*. London: Kogan Page.
8. Douglass, J. A., King, C. J. & Feller, I. (2009). The room with a view: Globalization, universities and the imperative of a broader US perspective. In J. D. A. Douglass, C. J. King & I. Feller (Eds.), *Globalization's muse: Universities and higher education systems in a changing world* (pp. 1–11). Berkeley: Berkeley Public Policy Press.
9. Garcia-Garrido, J. L. (1988). The Spanish UNED: One way to a new future. In G. R. Reddy (Ed.), *Open universities: The ivory towers thrown open* (pp. 200–214). New Delhi: Sterling Publishers.
10. Guri-Rosenblit, S. (1999). *Distance and campus universities: Tensions and interactions – A comparative study of five countries*. Oxford: Pergamon Press & International Association of Universities.
11. Guri-Rosenblit, S. (2010). *Digital technologies in higher education: Sweeping expectations and actual effects*. New York, NY: Nova Science.
12. Guri-Rosenblit, S. (2011). Universities: Moving from a national system to a glocal network policy. In I. Tubella & B. Gros (Eds.), *Turning Universities Upside Down: Actions for the Near Future* (pp. 137–156). Barcelona: Editorial UOC.
13. Jung, I., Wong, T. M., Li, C., Baigaltugs, S. & Belawati, T. (2011). Quality assurance in Asian distance education: Diverse approaches and common culture. *International Review of Research in Open and Distance Learning*, 12(6), 63–83.

14. Keegan, D. & Rumble, G (1982). Distance teaching at university level. In: G. Rumble & K. Harry (Eds). The distance teaching universities (pp.15–31). London: Croom Helm.
15. Levy, D. (2008). Private higher education's global surge: Emulating US patterns? Paper presented at the Conference on 'Privatization in Higher Education', Haifa: Samuel Neeman Institute, The Technion.
16. Mackintosh, W. (2006). Modelling alternatives for tomorrow's university: Has the future already happened? In M. F. Beaudoin (Ed.), Perspectives on higher education in the digital age (pp. 111–136). New York, NY: Nova Science.
17. Motlik, S. (2008). Mobile learning in developing nations. *International Review in Open and Distance learning*, 9(2).
18. Noble, D. F. (2001). Digital diploma mills: The automation of higher education. New York, NY: Monthly Review Press.
19. Perraton, H. (2000). Open and distance learning in the developing world. London: Routledge.
20. Peters, O. (1983). Distance teaching and industrial production. In D. Sewart, D. Keegan & B. Holmberg (Eds.), Distance education: International perspectives (pp. 95–113). London: Croom Helm.
21. Peters, O. (1992). Distance education: A revolutionary concept. In: G. E. Ortner, K.Graff. & H. Wilmersdoerfer (Eds.). Distance education as two-way communication (pp.28–34). Frankfurt: Peter Lang.
22. Peters, O. (1994). Distance education and industrial production: A comparative interpretation in outline. In M. Keegan (Ed.), Otto Peters on distance education (pp. 107–127). London: Routledge.
23. Rumble, G. (2001). Just how relevant is e-education to global education needs? *Open Learning*, 16(3), 223–232.
24. Stella, A. & Gnanam, A. (2004). Quality assurance in distance education: The challenges to be addressed. *Journal of Higher Education*, 47(2), 143–160.
25. Trucano, M. (2005). Knowledge maps: ICTs in education. Washington, DC: InfoDev, The Information for Development Program.
26. Vest, C. M. (2007). The American research university from world war II to World Wide Web. Berkeley: University of California Press.
27. Visser, L. & West, P. (2005). The promise of M-learning for distance education in South Africa and other developing nations. In Y. Visser, L. Visser, M. Simonson & R. Amirault (Eds.), Trends and issues in distance education: International perspectives (pp. 117–129.). Greenwich, CT: Information Age Publishing.
28. Warschauer, M. (2003). Technology and social inclusion: Rethinking the digital divide. Cambridge, MA: MIT Press.
29. World Bank. (2002). Constructing knowledge societies: New challenges for tertiary education. Washington, DC: Directions in Development.