The discourse and research on distance education in the online era suffers from inherent problems: the immense confusion as to what today constitutes distance education and a common misleading tendency to refer to online education as a synonym for distance education. The reality is that many distance education institutions, particularly the large-scale distance teaching universities, do not yet employ the electronic media as their main delivery medium, and most of the online education takes place at mainstream campus universities (Guri-Rosenblit, 2009). Many of the online learning technologies are used today to enrich and support lectures, seminar meetings, and face-to-face tutorials. During 2004–2005 the OECD conducted an in-depth survey of e-learning practices in 19 tertiary education institutions in 13 countries in the Asia-Pacific region, Europe, Latin America, and North America (OECD, 2005). One of the main conclusions of the OECD study was that most higher education institutions use the online teaching to enhance classroom encounters rather than to adopt a distance teaching pedagogy.
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 individual 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 Open University of the United Kingdom (OUUK) 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 species of university (Garcia-Garrido, 1988; Keegan & Rumble, 1982; Perry, 1976, 1977, 1996; 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. Many policy makers, scholars, and practitioners in higher education tend to use the terms distance education and online learning interchangeably, as synonyms, and refer to online learning as the new generation of distance education. Just a few examples: A comprehensive report issued by the Pew Learning and Technology Program in the US stated that, “The terms ‘distance learning,’ ‘distance education,’ ‘distributed learning’ and ‘online learning’ are used more or less interchangeably” (Twigg, 2001, p. 4). Mackintosh (2006), in describing alternative models of implementing the digital technologies in higher education, used the term distance education technologies as a synonym for the term information and communication technologies (ICT).

Bates (2005) stressed that the strong advocates of e-learning “who see e-learning as an educational paradigm shift, making obsolete all forms of distance education that preceded it make a fundamental mistake, since distance learning can exist without online learning, and online learning is not
necessarily distance learning” (pp. 14–15). In a recent international seminar devoted to examining the impact of ranking tables on online and distance education, it was argued that, so far, online providers and distance teaching institutions are not included in most ranking tables since there exists a confusion among higher education experts as to what constitutes distance education and online learning (Bengoetxea, 2011; Guri-Rosenblit, 2011). The result of this confusion is that the discourse and research on distance education suffer currently from an identity crisis and are characterized by blurred and confusing research questions, contexts, and outcomes.

**TRADITIONAL DISTANCE EDUCATION INSTITUTIONS: RESEARCH FOCI**

The most prominent modes of distance teaching institutions until the last decade were the single-mode distance teaching universities, the dual-mode universities (most notably in Australia and Canada), and the extensions in US universities. The distinct status of distance teaching providers had also shaped the nature of research, which was conducted by many academics on distance education. Typical research themes dealt with impact studies comparing students’ outcomes in distance education frameworks with those of students in conventional settings; perseverance in studies (most particularly, trying to explain the relative high drop-out rates in distance education); the use of diverse technologies in distance teaching environments; the importance of various support systems in distance teaching; the economies of scale provided by distance teaching; and so on. Until the last decade, most of the researchers of distance education at the macro-level purported to prove two major things: that educational outcomes of distance teaching at university level can be considered on a par with conventional teaching at a campus university, and that the operation of distance teaching universities, most particularly, the large-scale distance teaching universities, provides economies of scale and is considerably cheaper than conventional university teaching. Thus, distance-teaching universities are able to enrol large numbers of students at a lower cost and, as such, contribute greatly to the broadening of access to higher education and to social equity.

Most of the books and articles on distance education in the 1970s, 1980s, and 1990s were devoted to the analysis of the unique nature of the industrial mode of distance education, pioneered by the OUUK (Bell & Tight,
Many of these publications aimed to highlight the fact that not only have the new autonomous large-scale distance teaching universities presented a revolutionary and innovative idea of a university as compared to campus universities, but they have also departed from the conceptual framework and operating practices of the first generation of correspondence and extension institutions. Daniel asserted that the large distance-teaching universities were established “with the express purpose of breaking the perceived link between quality of education and exclusivity of access” (Daniel, 1997, p. 10). These universities have demonstrated that wider access, high quality, and lower costs can go together.

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, 1992, 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 modelled by the principles of rationalization, the most important of which were the division and subdivision of labour, 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 means that distance-teaching universities have to be established as large-scale organizations, otherwise their operation and quality may be compromised. Indeed, many of the distance teaching universities teach hundreds of thousands, and even millions, of students. 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).

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 distance-teaching universities by national governments in the 1970s and 1980s. However, comparison of costs between mainstream conventional universities and distance-teaching universities turned out to be most difficult to conduct, since their cost structures differ immensely.
(Perraton, 1993) and many institutions are reluctant or unable to share comparable cost data. Distance-teaching universities do not support campuses or residential facilities; in this respect, they are significantly cheaper to maintain as compared to campus universities. On the other hand, they require heavy investments to set up the infrastructure for the production of high-quality study materials even before a single student is enrolled. The capital costs of distance-teaching universities is also altered by the choice of media, the number of subjects taught, and the number of courses provided (Rumble, 1993). A handful of studies have helped to establish a methodology for estimating costs and have demonstrated the cost advantage of some distance-teaching universities (Mugridge 1994; Perraton, 1993, 2000; Rumble, 1993; Wagner, 1977).

The themes that were dealt with extensively in the relevant literature on distance education in the industrial era were of a theoretical nature, highlighting the uniqueness of the new species of universities by analyzing their innovative features. The macro-level analysis was of tremendous importance in depicting the underlying premises of the industrial mode of large-scale distance teaching universities, since it has been the responsibility of the institution as a whole to design appropriate mechanisms for developing materials, setting support systems, coordinating a complex network of study centres within national boundaries—and beyond—and monitoring the quality of the learning and teaching process.

**EMERGING DISTANCE EDUCATION PROVIDERS**

The new digital technologies have altered meaningfully the operation of campus-based and distance teaching universities worldwide and have offered exciting opportunities to enrich learning environments. Quite clearly, the new technologies are most attractive for distance teaching. They have the potential to overcome three major shortcomings of traditional distance education: to rescue the isolated students from their loneliness by providing interaction with teachers, professors and tutors, as well as with other peer students throughout the study process; to provide easy access to libraries and other information resources, which was nearly impossible in the past; and to update, share, and reuse the self-study materials on an ongoing basis. No wonder that research on distance education in the online
era has shifted strongly to studies dealing with interactivity, constructivism, and flexibility (Anderson & Elloumi, 2004; Andrew & Haythornthwaite, 2009; Moore, 2006; Rovai, 2004; Woo & Reeves, 2007).

The preoccupation with a variety of themes related to student–student, student–teacher, and student–content interaction in distance education settings is natural in the online era. However, most of these studies are conducted at the micro-level and focus on the impact of the technologies in small settings. Zawacki-Richter (2009) and Zawacki-Richter, Bäcker, & Vogt (2009) conducted two interesting studies on research themes in the leading distance-education literature. They related in these studies to three broad areas of research at the macro-, meso-, and micro-levels. Their studies revealed a strong imbalance in the three research levels. Issues that refer to the micro-perspectives dominate research on distance education. Over 50% of the examined papers dealt with issues of interaction and communication of learning communities (17.6%), instructional design (17.4%), and learner characteristics (16.3%). Only 8.9% of the examined studies by Zawacki-Richter, Bäcker, & Vogt (2009) were dedicated to the examination of distance-teaching systems and institutions. Obviously, there are noticeable research lacunas on online distance education at the macro-level.

It is important to stress that the online era is still very young and has not established itself yet as a well-defined field of study and research (Bates, 2005; Guri-Rosenblit & Gros, 2011). Part of the obscurity as to the potential and actual uses of the new technologies is reflected in a plethora of different terms in the relevant literature that attempts to depict their various functions. Even the modest exploration of the growing number of articles and publications describing technology applications in study and training settings yields a long list of hard-to-distinguish terminology. Donohue and Howe-Steiger (2005) claimed that the marketplace of ideas that once related to the applications of the new technologies has become a cacophony of jargon.

An important impact of online learning has been the initiation of the blended mode, in which face-to-face encounters are combined with online teaching, and new consortia-type ventures coordinated by several universities (or other parties from the corporate world) using online teaching. These new modes of teaching are offered both to 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 offer online professional and academic programs, and many partnerships between universities and the corporate world, as well as private and corporate universities, have been formed in the last decade offering for-profit online education.

For instance, the Open University System of China combines former China Central Radio and TV University, which was established in 1979, with other radio and TV universities across China. It was the sole distance education provider in China until 1998. Between 1998 and 2003, the Ministry of Education licensed 68 colleges operating from within conventional universities and other institutions to become online providers. By 2008, 2,250,000 students were studying through the Open University System, whereas 1,310,000 were enrolled at the online colleges (Jung, Wong, Li, Baigaltugs, & Belawati, 2011, p. 66). Obviously, such a trend enhances competition between single-mode distance teaching universities and new providers of distance education. Some of the new emerging distance-education institutions in many countries suffer from poor practices and resulting bad reputation; an urgent need exists to establish national and international quality assurance mechanisms, as will be discussed further.

A noticeable absence in the discourse and research on distance education in the online era relates to the inherent difficulty of the large-scale distance-teaching universities to fully adopt the advantages of the new technologies. The reason is that most of these universities lack the appropriate infrastructure and human capital to utilize the new technologies broadly and efficiently (Bernath & Hülsmann, 2004; Guri-Rosenblit, 2009).

Efficient online communication is, by its very nature, labour intensive. The industrial model is based on the notion of a small number of academics who are responsible for developing high-quality materials for large numbers of students. Obviously, small numbers of academic faculty are unable to interact with thousands or even with hundreds of students. Most, if not all, large distance-teaching universities cannot afford to hire many more academics in order to facilitate student-professor interaction in most of their large courses, often taken by thousands of students. In many distance-teaching universities, the faculty members who developed the courses are not involved at all in their actual teaching (Guri-Rosenblit, 1999). Furthermore, the extensive course contents that in large part defined the quality of these industrial model institutions is not designed to support learning community interaction. In addition, the production model is threatened by the general
decrease in value of content and from the growing number of open (and free) educational content being released by campus universities. The adoption of the interactive technologies requires a total overhaul of the very basic characteristics of the industrial mode of distance education.

An additional difficulty embedded in the adoption of the digital technologies by large-scale distance-teaching universities relates to cost-effectiveness considerations. Many e-learning applications are human intensive, require expensive technical support, and are most effective when conducted in small online classes. Rumble, for instance, demonstrated that online education is more costly than traditional distance education delivery and suggested, “it may prove to be more costly than traditional education” (2001, p. 230). The lack of reliable costs data in virtually all areas related to the application of electronic media is quite striking, most particularly at the institutional level. Few good, rigorous cost studies on the applications of technologies in higher education settings exist in developing countries, and very few such studies have been conducted in OECD countries (Arafeh, 2004; Perraton, 2000; Trucano, 2005). Obviously, many more studies should be conducted in the future on the costs, as well as on other implications, entailed in the adoption of the digital technologies in distance education systems and institutions.

NATIONAL AND CULTURAL CONTEXTS

Clearly, each national higher education system has its own peculiar features and qualities. As Burton Clark put it: "National systems of higher education vary in their organization and structure. . . . Different national structures then produce different responses to common trends and demands. The structure of a national system is generally the primary determinant of the direction and intensity of change within it, and the degree of success in deliberate reforms" (1986, p. 259).

When the large distance-teaching universities were established in the early 1970s, they adopted different policies in relation to open access and the utilization of available technologies, taking into consideration the prevalent academic culture of each national higher education system in which they were embedded. The OUUK, the Israeli Open University, and the Canadian Athabasca University adopted an open admission policy, whereas FernUniversität in Germany and UNED in Spain decided to require the same
entry requirements as the conventional universities. They did so because they feared that their counterparts would look down on them if they practiced an open access policy (Guri-Rosenblit, 1999). In countries with smaller populations, distance education systems had to further differentiate themselves from and be more flexible than campus systems in order to attract students. For instance, NKI in Norway and Athabasca University developed continuous enrolment models, rather than the semester enrolment.

The large-scale distance-teaching universities also related differently to the utilization of mass communication technologies. Television in the 1970s was the queen of the media, and the new distance-teaching universities were expected to harness the technology of mass communication to the purpose of widening access to higher education. Interestingly, though Germany was a leader in mass communication technologies in the 1970s, the FernUniversität decided from the outset not to broadcast on television or radio, but rather to stay mainly with print technology, in order to be as similar as possible to other German universities (Bartels & Peters, 1986). FernUniversität adopted this policy deliberately in order to be acknowledged as a respectable new university adhering to the existing cultural norms in the German higher education, and not to endanger its reputation through collaboration with television broadcasts, which were associated in those days mainly with entertainment.

Academic cultures and national settings affect immensely the implementation of online education in various national jurisdictions. The complexity of cultural and political differences between nations is of tremendous importance in explaining and predicting the success or failure of implementing innovations, such as online education. A successful university in one country can turn to be a total failure in a different cultural context. For instance, Phoenix University, the largest for-profit distance-teaching university in the US, pulled out in 2005 of the UK market because of a lack of enrolment demand. Its ethos of operation and the structure of its courses have not been attractive in the British context. And vice versa: the OUUK, the most successful distance-teaching university in Britain, attempted to develop a system serving the US market, only to find that its style of teaching and curriculum structure did not appeal to the American market. It pulled out this venture in 2003 (Douglass, 2005; Garret, 2004).

Evidently there are significant differences in the effect that the advanced technologies are having in different countries, related in large to their
economic wealth. Advanced economies have advanced systems of higher education and the appropriate infrastructure needed for the technologies’ implementation. In all OECD countries, both state and national governments play a significant role in the strategic direction and funding of higher education in general and e-learning in particular (OECD, 2005; UNESCO, 2005; World Bank, 2002).

Major challenges 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, speed interactions, 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 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 has introduced increasing reliance on digital information and advanced communication technologies (Mackintosh, 2006; Warschauer, 2003).

The emerging mobile technologies are thought to hold more 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 & West (2005) believe that there is great promise for the use of mobile phones in education in Africa. However, projects utilizing 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). It should be noted that many of the most successful applications of mobile learning in developing countries have been to augment, speed up, and alert students but they do not replace industrial
forms of distance education (Barker, Krull, & Mallinson, 2005). Many more studies are needed to investigate the effective utilization of mobile technologies, mainly in developing countries.

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 torn between the growing pressure to operate in the global higher education market in order to diversify their funding base by various mechanisms, enhance their traditional roles of serving national priorities, and mainly accommodate the needs of their local surrounding environments.

For many higher education institutions, the potential of globalization offers exciting new opportunities no longer limited by national boundaries, but for some others it still seems a threatening phenomenon that forces them to change drastically their policies and search for innovative ways of engaging in a totally new world, whose rules depart sharply from old and well-known conventions.

Distance teaching providers by their very nature can easily transcend national borders and admit huge numbers of students situated in different countries. According to a rough estimate, around 15 million students, out of a total of over 150 million students, currently study in various types of distance teaching institutions and online programs, and these numbers are likely to grow in the future (Boyd, 2006; Guri-Rosenblit, 2009, 2011; Zawacki-Richter & Kouroitchkina, 2012). Naturally, each distance-teaching university needs to design the appropriate strategies for operating in diverse international markets by translating and contextualizing study materials, finding suitable academic staff, and establishing appropriate support networks.

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 the studies which it offers, particularly if the international students have not mastered the English language (or any other taught language), and if 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 public distance-teaching university in the US. Quite obviously, it has to employ different logistics when it reaches out beyond its traditional market, which is to serve American soldiers scattered all over the world, as compared to teaching non-English speaking populations in countries that lack an appropriate technological infrastructure.

The decision of any distance-teaching university to broaden its operation to 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 it is able to provide, its overall budget, the language of instruction, and the setting of appropriate quality assurance mechanisms. With many new providers offering options for higher education, it is sometimes difficult to distinguish legitimate institutions from diploma and degree mills (Levy, 2008). This increases the urgency of international mechanisms for quality assurance. UNESCO has launched an online portal to guide individuals to sources of information that will help them distinguish legitimate from bogus institutions (Guri-Rosenblit, 2011), but many more efforts should be invested in this domain.

INTER-INSTITUTIONAL COLLABORATIONS

In the past, distance-teaching universities emphasized being stand-alone and autonomous universities. It has been of immense importance to establish their autonomous status vis-à-vis traditional campus universities. But the rules of the game have changed dramatically in the higher education market in the last two decades. Universities are required to operate in a global market, in which means to combine forces with other higher education institutions—and the corporate world offers compelling advantages to all partners.

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

Successful inter-institutional collaborations of distance-education providers have the potential to attract new student clienteles, reduce costs for course development, enhance flexibility, support higher quality mechanisms and infrastructure, provide richer and better programs, and strengthen the financial basis of the distance-teaching institutions. Finding appropriate partners and maintaining a fruitful collaboration constitute the most challenging but critical tasks for the future of distance education providers. Two important areas in which cooperation is an imperative for distance-teaching institutions relate to the open access movement, and the need to establish regional and international quality assurance mechanisms for the various modes of distance education provision.

The open access 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, easier and more cost-effective access to sources of scholarly information, libraries, courseware, and software code can 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 staff and research facilities. Within the academic community there are currently many initiatives widening open educational resource usage all over the world (Altbach, Reisberg, & Rumbley, 2009; Vest, 2007). The open access 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 two UNESCO chairs initiated in 2010 on OER (Open Educational Resources) are led by Fred Mulder, the former president of the Dutch open university, and by Rory McGreal from Athabasca University, the Canadian open university. Naturally, research on the open access movement should address critical issues relating to language barriers, cultural and national obstacles, and accreditation mechanisms.

An additional important area in which inter-institutional collaboration is an imperative relates to establishing quality assurance guidelines. The new technologies gave rise to a large number of diploma mills, which Daniel
Levy called “fly by night institutions” (Levy, 2008). 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. 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. 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). In a comprehensive study by Jung et al. 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 outlining 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.

RESEARCH ON DISTANCE EDUCATION IN THE ONLINE ERA: MAJOR CHALLENGES

This chapter aimed at portraying the major theoretical insights that have guided research on distance-teaching institutions and systems since the 1970s. Many publications and studies on the industrial mode of distance education that characterized the nature of the large-scale distance-teaching universities dealt with macro-level issues. These universities were by
and large a product of governmental planning as large-scale higher education institutions set to fulfill national missions. Their operation entailed a well-coordinated and orchestrated institutional planning and monitoring. The new electronic technologies gave birth to many new distance education providers, some of which are operated by conventional universities, and many are new type ventures. The blurring of boundaries between conventional and distance education has created an identity crisis as to what constitutes distance education. The category of online distance education excludes most large-scale distance teaching universities that do not use the electronic media as their main delivery system. The broad category of online education encompasses a wide range of institutions and programs that are not targeted to distant students. The blurring of boundaries between distance and residential institutions and a confusing terminology in the relevant literature dealing with the many applications of the new technologies are responsible for much confusing and non-conclusive research findings.

Furthermore, the interactivity enabled by digital technologies between students and teachers, among students, and between students and content has strongly shifted the research foci on online education to the micro-level, presenting a huge amount of studies dealing with the impact of various new applications of the technologies, mainly in small settings. There are currently thousands of scattered studies at the micro-level that present contradictory results, suffer from various biases and methodological errors, and mostly do not yield robust conclusions that enable policy makers and practitioners at the institutional and systems level to use them in an intelligible way.

The research on online education, both at campus-based universities and distance teaching providers, is marked today by large lacunas, notably at the institutional and wide systems levels. Four major areas particularly need to be treated in the relevant research on systems and institutions of distance education in the online era: the cultural and national and international context of distance education operation; the search for a golden triangle offering high-quality online distance education to large numbers of students at a lower cost; the variables responsible for successful inter-institutional collaborations; and the optimal ways to overcome the digital and literacy divides.

There is a noticeable lack of comparative studies dealing with the cultural and national and international contexts related to the operation of distance-teaching institutions and systems, particularly in the online era.
Neither the single-mode distance teaching universities nor the blended mode provision should be treated as representing homogeneous-type institutions. One of the most important lessons retained from the comparative research of the large-scale distance-teaching universities has been that vast and profound differences exist between them (Guri-Rosenblit, 1999, 2009). Distance-teaching institutions provide more than one grand model of an innovative university. Some are national universities; others are regional. Some encompass a wide international scale and scope, while others are more locally oriented. Some are mega-universities teaching hundreds of thousands, and even millions of students, compared to relatively small-scale distance-teaching universities. Few distance-teaching universities exercise an open admission policy, while most others adhere to conventional admission procedures, and other conventional practices. The cultural and the national and international contexts have an immense impact on the missions, potential student clienteles, range of programs, and the nature of support systems of any higher education institutions. Particular attention should be devoted in the relevant literature dealing with online distance education with a clear portrayal of their online dimensions.

An additional challenge for researchers on distance education institutions in the online era is to find the golden triangle between wide access to higher education, high-quality learning, and economies of scale. The industrial mode of distance education has demonstrated that it succeeded in creating an admirable equilibrium between being able to absorb very large 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 using online learning technologies and pedagogies.

The gradual move among higher education institutions from operating mainly within national boundaries to an international landscape constitutes both an opportunity and a challenge. Universities are required to adopt their structure and operations to the needs of the knowledge society. Besides the obvious challenge of competing for students with increased numbers of international competitors, operating in a global and networked landscape has a crucial impact on shaping the missions, strategic planning, and operational practices of higher education institutions. Distance-teaching providers by their very nature can easily transcend national borders and
admit students situated in different countries. With the emergence of many providers of distance education in the last decades it is currently difficult to distinguish between legitimate and respectable institutions from diploma and degree mills. This increases the urgency of establishing international mechanisms for quality assurance and of conducting appropriate research following the definition and operation of such mechanisms. The successful operation of distance education institutions and systems in the global arena depends highly on insuring their reputation as providing high-quality education by launching inter-institutional and inter-regional alliances, and by wisely utilizing the open resources.

And last but not least, the digital divide between the developed and developing countries, and between rich and poor in any given country, is still huge—creating immense gaps in existing technological infrastructures and personal access. Some advanced technologies hold the potential to decrease the digital gap, whereas others 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 should follow these efforts by insightful studies. Particular attention should be devoted in the relevant research on distance education institutions and systems in the online era to the potential of mobile technologies to bridge over the digital divide.

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