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Emerging Trends and Setbacks in e-Learning Networks in Africa

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Abstract

An examination of the strategies adopted by African institutions and governments to tap from the global e-learning networks is carried out. The strategies seem to involve mainly local higher educational institutions and the public sector organisations, and less of the private sector. There is little evidence of partnership between producers of educational objects with providers of educational services, as well as with educational institutions; but we can identify consortia among African institutions, twinning by United Nations agencies and franchising by developed countries' institutions. We discuss the factors accounting for this pattern of networking in the continent, and suggest that they relate mainly to the pattern of deployment of ICT at higher institutional levels, regulatory challenges of the telecommunications and IT policies, human resource requirement constraints, and the question of quality assurance, among others. We finally identify some initiatives of the international, regional and national bodies, which suggest that e-learning networks might overcome these obstacles to contribute to development of education in Africa.

Keywords: Higher education, regulatory changes, IT policies.

Introduction

Education is central to development; communities with low level of education may therefore rank low in development indices because educated persons in any population are less likely to be poor than the uneducated (Juma, 2003). The Mincerian regression has shown in a large-scale study that earning is proportional to education, a finding under-girded by the human capital development theory of Schultz (1961) and Becker (1964), which posit that individuals invest in themselves by acquiring education and other forms of knowledge in order to be capable of valuable productive services. Although there is yet to be an adequate empirical support, Sandberg (1978), Deilson (1967), and Wolff (2001) have suggested that all developed and industrialized countries have attained a very high level of education. A number of macroeconomic studies, however, lend evidence to the claim that education is an important factor explaining differences in economic growth across countries (Lau *et al.* 1990). To ensure that the benefits of education are realized, all sectors of human communities, both private and public, participate in educational activities, adopting any strategies and technologies that could foster the delivery of education. A strategy is the emergence of electronically driven educational delivery activities.

Networks for learning are very old in history. But there are several changes in the society that have currently influenced the structure and practice of networking in the recent years. Two major of such changes are information technology revolution and the ongoing globalization. In a sense, globalization is concerned with how to improve interaction among human beings on earth for the mutual benefit of humanity (Oyejide, 1985). In the e-learning perspective, networking is a way of overcoming individual differences and difficulties by creating suitable environments for exchange of ideas among members of a community through information technology. Networking for learning has implications that cooperatively, members of a community can pool their strengths together to overcome the weakness of others so that they can together overcome the obstacles posed to education by employment, physical disability, social unrest, among others. This expectation is probably responsible for the emergence of learning communities and other timeless learning strategies. Like elsewhere, Africa and her institutions are also harnessing this new opportunity (Butcher, 2003). In this article, we examine the structure of emerging global networks for e-learning, with particular interest on the characteristics of the structures adopted by African countries' to tap into the new educational phenomenon. We also investigate how these structures are influenced by Africa's peculiar social and political characteristics. For a clearer understanding of this paper, we may need to clarify some concepts.

Clarification of Concepts

Networking has been defined as an interconnection of entities that communicate among one another (Starkey, 1999). On the public sector, Kamensky (2002) has suggested that a successful network will have the following components: building trust, being a co-equal partner instead of trying to be in charge, willingness to function with open decision making processes, and to engage in collaborative problem solving. Lipnack *et al*, (2000), on their own part, have described networking in the private sector as consisting of - shared vision and trust, independent membership, voluntary links, multiple leaders and clearly defined roles. There are several models of networking, ranging from a situation in which there does not exist any information exchange; and there is no feedback or reciprocity to the central secretariat model where all components have a reciprocal relationship although the institutions may not be networked. Networking has been given greater significance with the discovery and sophistication in ICTs, which facilitate the interconnection of people, organizations and countries. In the educational sector, learning networks are about people who are linked up to share knowledge with one another.

There are different configurations of E-learning networks. Although partnership and partnering are related, Otite (2002) has highlighted the major and significant difference. According to her, partnering usually implies a continuous and synergistic relationship between or among organizations, institutions or countries, with the aim of creating or developing an infrastructure or service, assistance, or cooperation for the benefit of one or both of the partners. Using the cooperation agreements between a rural community in Delta State, Nigeria and Shell Petroleum Development Company (SPDC) regarding funding of education in the community, Otite showed that SPDC has established recyclable machinery from which youths in the community can draw fund for their education. SPDC has also signed agreement to employ persons from the pool of the products of this project. Otite therefore conceptualized that such a relationship could be considered as partnering instead of partnership. On the other hand, Beebe

(2003) has defined partnership as including "… many forms of relationship like one time donation, sponsorship or cooperation for sharing of information, working together to more deliberate cooperation and collaboration by joint planning, implementation and evaluation, (Beebe, 2003; p3)". Hence, while partnership might imply a one-time assistance, partnering has implications for enduring cooperation for mutual benefit. Gomes-casseres (1996) has provided an insight into alliance. According to him, an alliance is characterized by cooperative arrangements, which are governed by a formal, but incomplete contract, which, when interconnected leads to the development of a network (Gulati, 1998). However, partnership, partnering and alliance are aimed at providing opportunities for mutual benefits and results beyond what any individual person or organization can realize alone.

The concepts we have defined might not have necessarily originated from the educational activities, but their embracing in education illustrate the reconfigurations that are going on in the human community to meet human educational needs. Specifically, they demonstrate that e-learning networks today encompass, at different circumstances or and sometimes simultaneously, interconnections of partnerships, partnering and alliances, or a combination of them as an evidence of the willingness of the various public and private sector individuals and organizations to cooperate with local and international counterparts for mutual educational benefits. An examination of the global learning network structures show that they encompass arrangements that fit the various concepts we have defined. Gonzales' (2000) has summarized factors that could enhance mutual benefits among partners, and these include, (a) missions, in which a conflict may arise in differentiating between education and profit, (b) cultures, where academic versus corporate cultural perspectives might need to be reconciled. Others are (c) organizational structures - academic institutions have what is commonly known as learning structures whereas the corporate world operate traditional hierarchical structures, and, (d) the need to address the question of the differences in the philosophies of education and business might be a serious factor. It is altruistic that the peculiar socio economic and political circumstances of countries will influence the nature and characteristics of the partnership they would adopt in tapping from the new configurations for educational development.

The General Context of Education in Africa

The enormity of the development deficits, which Africa has carried into the 21st century, is illustrated by the evidence of the position of her member countries in the United Nations Human Development Indices (HDI), for instance, HDR (2003). Sub-Saharan African countries constitute the dominant 'club' members in the low human development category, a situation that has a number of revealing comments about the human condition in the continent. Africa is still grappling with gender inequity, infant and child survival problems, maternal mortality, hunger, lack of access to social amenities, problems of achieving universal education, among others. Of all these deficits, the education burden seems to be the heaviest. Compared with global trends, educational development in Africa actually lags behind, bedeviled by human-made disasters and conflicts, which present competing priorities for governments and other agencies.

Table 1 shows the social economic indicators of selected African countries, and some world regions whose data are available. This data concerns the population, urban population size,

general population growth, GDP per capita, and proportion of each of the populations living below poverty line. Nigeria presents the most gruesome picture, having 90.8% and 70.2% of persons living under $2 and $1 per day respectively, with a GDP as low as 896 million dollars for a population of more than 113 million persons. With its high GDP, in comparison with other countries, South Africa still has 35.8% of its population living below $2 per day.

Table 1. Socioeconomic indicators of selected African countries and world regions

Country	Population in 2000 (millions)	Urban population in 2002 (% of total)	Annual % population growth		GDP per capita 2000(PPP US$)	%below poverty line (1983-2000)	
			1975-2000	2000-2015		1$ per day	2$s per day
Botswana	1.6	49.0	1.8	1.0	7,184	33.3	61.4
Cape Verde	0.4	62.2	1.7	1.9	4,863		
Cameroun	14.9	48.9	2.7	2.0	1,703	33.4	64.4
Congo DR	50.9	30.3	3.2	3.3	765		
Egypt	67.9	42.7	2.2	1.5	3,635	3.1	52.7
Kenya	30.7	33.4	3.3	1.8	1,022	26.5	62.3
Morocco	29.9	55.5	2.2	1.5	3,546	<2	7.5
Mozambique	18.3	32.1	2.3	1.7	854	37.8	78.4
Nigeria	113.9	44.1	2.9	2.5	896	70.2	90.8
South Africa	43.3	56.6	2.1	0.2	9,401	11.5	35.8
Region							
Sub-Saharan Africa	606T	33.9	2.8	2.4	1,690	NA	NA
Developing countries	4,695T	40.0	1.9	1.4	3,783	NA	NA
South Asia	-	-	-	-	-	-	-
Arab States	-	-	-	-	-	-	-
OECD	1,129T	76.9	0.8	0.5	23,569	NA	NA

Source: *Compiled from data obtained from Butcher (2003)*

African countries have also fallen short of the World Bank expectation that educational budgets be between 4 and 6% of the GDP. Except for Tunisia and Morocco, which met with the upper ceiling of 6% in 1985-1987, two other countries Swaziland and Togo only beat the 4% bottom line. By 1995-1997, only Tunisia was able to beat the upper ceiling. Except for Burkina Faso and Guinea whose educational budgets remained terribly very low, the other countries have managed to beat the bottom ceiling. Education for All (EFA) Monitoring Report (2002) has observed that despite absolute figure gains in educational budgets in many developing countries, most African countries such as Nigeria, DR Congo, and Sudan have already created a financing gap of more than $85 million per annum in order to meet up with the educational deficits already accumulated. These circumstances also affect the way in which African countries tap into the new e-learning strategies.

Most distance learning programs in Africa still use print-based materials and support them with face-to-face teaching. According to Butcher (2003) over 83% sub-Saharan Africa distance

learning programs provide interpersonal learning support. This is also the case in Mauritius and Ghana. Some institutions in Namibia and Uganda use radio and television. This implies that the use of ICTs in distance education in Africa is still very limited. Butcher also reports that only about 2% of the Anglophone countries use *Internet*, compared with 15% of the Francophone countries, which also use only about 61% interpersonal strategies. In 2000, telephone mainlines in the sub-Saharan Africa was 15 per 1000 persons while Latin America (147), East Asia and the Pacific (104), Arab States (77), Central and Eastern Europe and the CIS (124), and South Asia (7). The subscription for mobile lines during the same period follows the same pattern (HDR 2002). A high user growth of 183.2% during 2000-2004 notwithstanding, African *Internet* statistics shows a penetration of only 1.4%, which constitutes about 1.5% of world statistics. This does not compare favourably with Asia, Europe, South America, Latin America and the Caribbean, and Oceania, which have higher penetration rates of 7.1%, 30.7%, 68.6%, 9.4% and 48.5%, representing 32.1%, 28.1%, 27.9%, 6.35 and 2% of world data respectively.

These statistics have implications for the education of the people of Africa. Often, low socio-economic indicators present competitions for the scarce resources, and this situation, places the governments under serious pressure with respect to decision-making, and priority setting. For instance, low nutritional status means that government might reduce education budgets in order to tackle the problem of food, which is actually very important. Within the educational context, the conditions we have enumerated have grievous consequences, and this rubbing off on commitment to education as exemplified in low educational expenditure pattern in the selected countries, in addition to hampering of the technological capacities as well as impinging upon government budget and other forms of commitment. We can identify some general structure of e-learning networks.

The Nature of Global e-learning Networks

Learning networks exist today between public and private sectors, among institutions, between institutions and governments, businesses, industries, and associations. We can identify six different formats of these learning networks.

(i). Remote Satellite Campus Strategy

Many universities are beginning to establish satellite campuses far away from their main campuses in order to extend their educational services. The campuses may be established in other countries or in the same country. Although the major motive is generally believed to be the extension of educational services to those who do not have adequate access, there is a further observation of the quest to establish one's institution's presence elsewhere, to assist a political ally. While this strategy is not altogether a new one, the driving factor cannot be detached from globalization, and the need to help those countries with low level of technological and infrastructural development. Sometimes, the pattern of migration of their citizens would also influence the establishment of a country's satellite campuses. For example, the National University of Singapore has established satellite campuses in India, China and the United States, where Singaporeans have always found homes (Thrift, 2000) just as the Monash University in Australia has established campuses in South Africa and Malaysia.

(ii) Twinning

Twinning can be defined as agreements between institutions in different countries to offer joint academic programs such that courses offered within the program are designed to be the same at either institution. Often one of the institutions will offer only part of the program one year or more)—then students must transfer to the other twin to complete their program (see www.amideast.org/publications/aq/AQ_Fall_2000_Transnational_Education_Definitions .htm). A typical characteristic of twinning programs is that it is usually defined for one short period at a time. It could therefore be either partnerships or alliances.

(iii) Spin-offs, outsourcing and consortia

The concept of spin-off is developed from economics, and is concerned with the setting up of a subsidiary as a separate corporate entity through the issuance of shares in the subsidiary to shareholders of the parent company. Some spin-offs are created through leveraged buyouts by the subsidiary's present management. A practice that is often influenced by profit motive, academic institutions now offer for-profit educational services to both their immediate and other communities or country.

‘Outsourcing’ is used to describe a situation where someone who is not on the university payroll manages the whole or part of a specific university function. Outsourcing of certain non-academic university activities such as catering is not new, but the new dimension of outsourcing which involves those functions that are strictly academic is generally a recent development. Increase in outsourcing practice has been accounted for by the observation that many universities have been faced with the challenge to expand their enrolments, in addition to not just maintain but rather improve the quality of their services. There is also the factor of increasing need to cut costs, improve efficiency and meet the demands for greater accountability, and one option that is increasingly under application is the ‘outsourcing’ of some services previously provided and managed by the university itself. Increasingly, we are also having-cross border consortia where a group of institutions pool their resources together for the purpose of offering educational services.

(v) Partnership between producers and providers of service

There is an increasing partnership between producers of e-learning objects and providers of e-learning services, and this sometimes results in academic services. For instance, Microsoft Inc. has entered into several partnerships with service providers such as Blackboard. Although this kind of partnership is mainly business-driven, the ICT educational component is critical to further education of persons in the communities where such facilities are installed in addition to improving the self-efficacy of their beneficiaries (Beebe, 2003).

(iv) Partnership between producers and academic institutions

Large corporations sometimes partner with academic institutions to offer credits, which are acceptable by the academic institutions. For instance, Cable and Wireless Virtual Academy has a partnership with Global Technology University in the United States to offer training in aspects of information technology.

(vi) ICT-producers offering academic credits

An increasing trend in educational activities necessitated by the rapid development in e-learning strategies is the offering of academic credits and training by ICT producers. A typical example is the Microsoft Certification Program, which graduates of even renown institutions and disciplinary areas are sometimes expected to obtain in order to enhance their professionalism.

(vii) Franchising

In this arrangement, an institution in one country, say United States, approves another institution in another country, say in Nigeria, as a partner in offering certain educational programs. This strategy follows the center-periphery arrangement in which bigger and reputable institutions sell the services of a smaller institution by accrediting or approving the smaller institutions to offer some of the courses for which the big institutions is renown.

The network structures we have examined above encompass at varying degrees the different concepts we have defined namely, partnering, partnership and alliances. We also observe some general factors that seem to motivate them: workforce development, financial benefits, sharing of expertise, political gains, and prestige. A further examination of the networks shows that they include private and public sectors, and, government and non-government organizations respectively.

We also observe that the partnerships are involving more and more of the private sector organizations. Although academic institutions have always formed collaborations, which are often loose in legal and formal sense, unlike private sector partnerships, which are often legally and formally tied because of the business and profit components (Kamensky, 2003), the new forms of involvement between private and public sectors are new. For instance, the offering of academic credit by ICT producers is very new.

How is Africa plugging into this new reconfiguration in e-learning networks, and how is she harnessing the new interest of the private sector? Peculiar social, economic, cultural and political circumstances, which vary even within member nations, will definitely determine the manner and direction in which Africa will tap from the new educational networks. Also, the level of technological development will affect African communities' harnessing of the new partnership formats in order to overcome their educational difficulties. These factors will also influence how the mission, cultural, organizational structures and philosophies of education and businesses will be resolved in the e-learning networks.

Emerging Strategies for e-learning Networks in Africa

New forms of local and international collaborations are starting to emerge among countries and private and public sector agencies in Africa for the purpose of educational development. Despite imperfect access to ICT, African higher education institutions are embracing the new forms of learning networks to respond to the challenges posed by a rapidly changing and increasingly interdependent world (Beebe, 2003). Let us now scan the major African e-learning initiatives, which shows significant differences and similarities with the global network format.

(i) African Virtual University (AVU)

A major evidence of the dawning of e-learning in Africa is the establishment of the African Virtual University (AVU) developed under a World Bank project with the 'proof of concept' tested during 1997 to 1999. AVU is an intergovernmental African membership virtual university organization presently consisting of seventeen African countries, with its headquarters in Nairobi, Kenya. According to Juma (2003), AVU was established because of the realization that, *"tertiary institutions in their present forms, overwhelmed with problems related to access, finance, quality and internal and external efficiency are unable to bridge the knowledge gap. Limited space and declining budgets prevent universities from servicing the growing demands of higher education"* (p.210). As a result, higher educational institutions in Africa are characterized by low enrollment rates, limited levels of research, poor quality of educational materials such as libraries, and programs that do not meet expected requirements. AVU was established to use a technology-based and distance education network to build capabilities in science and engineering as a strategy of meeting some of the challenges of higher education in Africa. The AVU has attempted to address the problems of access and capacity building by partnering with interested universities in sub-Saharan Africa, with the content provided by expertise from Canada, America, France and Northern Island in the delivery of the courses.

Reported experiences and lessons learned so far in the pilot phase shows that the model of using technology to deliver education is one of the most practical solutions to increasing access to education. There is expressed willingness on the part of the African institutions and students to pay and participate in the project. Areas that require revisiting anyway relate to the sensitivity of the educational products of the AVU to African cultural and social realities in view of the partnership with developed countries models and structures. There are issues of quality assurance and strong infrastructural support in which need exist for efficient and affordable distribution of technologies for supporting both learning and the learner.

Currently, AVU is however not playing the role of educational service provider but rather that of facilitator and integrator of an education network in which status it performs the matching of educational institutions with providers of content. AVU accomplishes this role through the inter-linking of African institutions, aggregating of content and technology in addition to mobilization of resources. Using distance learning portal, digital library and high speed Internet access, the AVU wishes to broaden its impact on African educational system. Although the role of integrator will not directly increase the educational status in Africa, it is anticipated that the strategy will contribute in raising enrollment levels in African higher educational institutions, particularly in the disciplines of computer science and engineering where Africa currently has the lowest enrolment rate. The AVU model is also believed to be capable of increasing and encouraging the enrollment in distance education in Africa, encourage and give women educational opportunities in science and technology, and also develop capacity in computer education and engineering.

(ii) The Association for African Universities (AAU)

Another milestone in e-learning networking initiatives in Africa is the Association of African Universities, which has initiated e-learning projects. The AAU has formed a Network for

Regional Cooperation in Graduate Training and Research based on Africa-to-Africa networks. According to West *et al*. (1999), part of the operational methods of the network is the transfers of credits and cross listing of courses in humanities, engineering, agriculture, law and microbiology. Another service of the AAU that relates to the e-learning capacity is the Database for Thesis and Dissertation (DATAD). This project is commendable in view of the lack of seriousness accorded to bibliographic indexing in Africa. DATAD addresses the very crucial issue of indexing of masters and doctoral degree theses in order to share knowledge about what has been done and what remains to be done.

(iii) International Center for Insect Physiology and Ecology (ICIPE)

The International Center of Insect Physiology and Ecology (ICIPE) is an organization with a tropical agenda. The organization was set up to study insects, insects are a fact of life to be reckoned with in the tropics, posing a greater risk to food production, often causing the loss of entire crops and destroying about half of all harvested food in storage. Established in Kenya in `1970, ICIPE's founders recognized that the mainly developing countries in the tropics had special problems that were not being adequately addressed by scientists and organizations in the North. ICIPE involves about 22 African institutions researching on insect science. In collaboration with African Economic Research Consortium (AERC), the ICIPE features the Anglophone collaborative master's degree program that brings over 20 universities from over fifteen countries. Although the consortium has a web presence, it has not really integrated ICT into its *modus operandi*. Beneficiaries of the courses in the program still go to Nairobi during July-September for an intensive training while all other courses are taught in the various member university campuses (Beebe, 2003). ICIPE's mission is to help alleviate poverty, ensure food security and improve the overall health status of peoples of the tropics by developing and extending management tools and strategies for harmful and useful arthropods, while preserving the natural resource base through research and capacity building.

(iv) University Twinning and Networking (UNITWIN) Program of the UNESCO

The *UNITWIN*/UNESCO Program was launched in 1992, in accordance with a resolution adopted by the General Conference of UNESCO at its 26th session in 1991. This UNESCO program serves as a prime means of capacity building through the transfer of knowledge and sharing in a spirit of solidarity with and between developing countries. The main participants are hundreds of universities, in partnership with many important higher educational institutions, NGOs and hundreds of other organizations, foundations and companies. Today the *UNITWIN*/UNESCO Chairs Program is UNESCO's most important intersectoral downstream activity in the field of higher education, comprising almost 500 UNESCO Chairs and inter-university networks established in some 113 Member States of the Organization. The *UNITWIN*/UNESCO Chairs Program covers training, research and information activities in all major fields of knowledge within UNESCO's competence. Its principal beneficiaries are institutions of higher learning in developing countries and countries in transition (75% of established projects). The majority of the projects is interdisciplinary and inter-sectoral and involves all program sectors at UNESCO Headquarters in Paris as well as all UNESCO Field Offices, Centers and Institutes.

(v) Education/Business Partnership

ICT businesses in the developed countries are beginning to develop partnership with some academic institutions in Africa and award educational certificates and degrees. For instance, Cisco Networking Academy is partnering with the polytechnic of Namibia. Cisco is also partnering with African universities and international organisations such as the United Nations Development Programmes (UNDP) to establish regional networking academies in Africa. Already some African countries such as Mali, Malawi, Mozambique, and Nigeria, among others, are beneficiaries of such training programmes.

(vi) Africa to America Network

The Leland Initiative of the USAID in cooperation with Education for Development and Democracy Initiative (EDDI) are developing an Africa to U.S network. Typical products of their efforts are (i) Kenya Education Network (KENET), (ii) the knowledge and learning partnership (KELP) in South Africa, and (iii) the NeTel@Africa (Beebe 2003).

(a). KENET grew out of a bilateral agreement between Kenyan and the United States governments to implement the Leland Initiative, in which the government of Kenya committed itself to exploring *Internet* pricing reforms plus the linking of Kenyan universities to the *Internet*. Presently, KENET consists of 22 Kenyan tertiary institutions whose first task was a four-fold action plan for linking universities in Kenya to each other and to the *Internet*, a human resource plan to manage the linkage, a financial plan to ensure sustainability, and a governance structure for the management of the system and its resources (Thairu, 2003).

(b). KELP, on its own part, was established as a catalyst for exchanging knowledge and forming learning partnerships that are based on the use of ICT, in addition to face to face interaction. The idea is embedded in the sharing of knowledge and expertise between African and American networks.

(c.). NeTel@Africa is an Africa wide network for capacity building and knowledge exchange in the telecommunications sector. NetTel@Africa is a transnational network for capacity building and knowledge sharing in ICT and telecommunications policy, regulation and applications. The overall goal of NeTel@Africa, which presently consists of more than 20 African countries, is to make the provision of ICT and telecommunications services more efficient and ubiquitous to all-African citizens. NetTel@Africa aims to build the capacities of policy makers, regulators, private sector operators, consumer advocates, and academic institutions. NetTel@Africa consists of four components: e-learning Program in ICT Policy and Regulation; Peer-to-Peer Network (P2P); Community- to-Community Program for ICT applications (C2C); and Research Programme. The main delivery barriers are related to access to content, availability of a suitable technology platform, and knowledge of e-learning pedagogy. These have been addressed directly as part of the design of the NetTel@Africa project, and, in conjunction with addressing the institutional challenges.

An examination of the African e-learning structures and initiatives we have described above shows some interesting characteristics. Crucially, the strategies involve mainly higher educational institutions, and less of local private sector participation. The private sector initiatives such as those of Cisco and NeTel@Africa originate mainly from the developed countries, and the collaborators are often higher educational institutions. Furthermore, except probably the collaboration between Kenya and the United States (in KENET), there is also less presence of cooperation involving developed countries and their African counterparts. Also, African e-learning structures are mainly consortia involving mainly African institutions. There is however, the French-speaking countries' program on occupational health called *Recherche et la Specialisation en Saute a Travail* (FORST) which links some selected African countries with McGill University in Canada and Lille University in France. The network partners developed the content for a new post-graduate diploma progamme in ICT/Telecommunications Policy and Regulation while at the same time developing the software for an online learning management system. There is some evidence of twinning and franchising, the *Reseau Africain de Formation a Distance* (RESAFAD) which offers teacher training programs right from France to some French speaking African countries such as Benin, Burkina Faso, Guinea, Mali and Togo, is a typical example.

International spin-offs and outsourcing are also relatively absent. There is little evidence of partnership between producers of educational objects with providers of educational services, as well as with educational institutions. Except the University of Australia, which offers some educational services in South Africa, remote satellite campus network strategy is also relatively absent. But generally, there exist some forms of partnership aimed at offering some forms of assistance. We can also infer that higher educational institutions in Africa seem to be at the forefront of e-learning networks in Africa. Despite the recognized roles of the private sector in facilitating the widespread access and availability of ICTs, in addition to constituting conduits for producers and marketers of ICTs products and allied educational services from the developed countries, the African private sector is yet to participate actively in e-learning networks.

Furthermore, African e-learning network strategies seem to favor consortia because consortia are, on most of the occasions, usually not-for-profit, but often require pooling of resources together in order to achieve stated objectives. But the formation of consortia among African institutions and institutions in developed countries seem to be more favoured by the French speaking Africa. Also, we can speculate that consortia are most likely to win the encouragement of the international agencies, because their assistance is likely to reach a relatively large number of beneficiaries, and funds may also be better managed. Evidences of twinning are provided by the United Nations UNITWIN project, which is funded by the UN, and, the *RESAFAD*, funded by France for French speaking African countries. Spin-offs and outsourcing, partnership between producers of ICT objects and providers of educational services and academic institutions, are profit-oriented. We would then suggest that for-profit transnational investment in e-learning in Africa does not seem to be attractive to the public and private sector institutions of the developed countries.

Challenges and Opportunities of e-learning Networks in Africa

Based on the knowledge about African countries economies, there is a sufficient basis to observe that social, political, and economic and other factors may be responsible for the nature and extent of e-learning networks in Africa. For instance, many African countries have grappled with the protracted political challenges. Highhanded military regimes and other forms of undemocratic governments, high level of official corruption and mismanagement of public funds, among others, are common characteristics of most African states. This situation largely accounts for the poor economic performance, high degree of income poverty, low health profile, and high disease prevalence, among others. In addition to issues related to fear of security of investment and continuity of initiatives, the ability of individuals to buy the educational services of developed countries' universities might be limited.

Another category of thoughts will relate to ICT, and factors affecting their deployment in Africa. Crucial among them is the problem of physical infrastructure at the higher institutional level, regulatory challenges of the telecommunications and IT policies, human resource development factors, the question of quality assurance, among others. Further studies are required to gauge the way in which these factors constrain the range of e-learning networking options available to Africa, and how to overcome them.

Despite these problems, the opportunities for improving the networking structures in Africa abound. For instance, there is evidence that liberalization and competition, appropriate tariff structures, and greater incentives for private sector participation can contribute in the expansion in e-learning networks. There is an expectation that the regime of ICT policy installation in many countries will sooner than later demand regulatory instruments in order to be fully utilized. We however still need to research on the appropriate regulatory conditions that will yield maximum objectives.

One of the challenges of inserting citizens in the global economy is the emergence of the market orientation of transnational education services. The relationship between ICT and transnational education, with particular respect to the peculiar situation and circumstances of Africa need to be studied and documented. It is also crucial to study how ICT fosters international cooperation among countries, and how this can be harnessed to meet the educational needs of the underserved communities. Furthermore, since we have shown that universities in Africa have expressed profound desire to create learning networks, there is a need to examine the role and integration of ICTs in higher educational system so that higher educational institutions will form the hub of e-learning networks in Africa.

We can also point to some global ICT developments around the world, which have the potentials for boosting e-learning networks in Africa. For instance, The United Nations established a Task Force on ICT to find new and creative ways of spreading the benefits of ICTS and bridging the digital divide. The Task Force comprises of the private, public, civil society, the scientific community and leader of the developing and transition economies. Also, the World Summit on Information Society developed from the initiative of the Plenipotentiary Conference of the International Telecommunications Union (ITU), and endorsed by the UN General Assembly as an effective means of assisting the UN to achieve the Millennium Development

Goals. By providing the platform where governments, UN agencies, private sectors and civil society come together to develop a common vision and understanding, the Summit promises to increase the partnership for e-learning. The Global Knowledge Partnership is another worth mentioning project. It is a network of networks with diverse members base from all sectors in both developed and developing countries. Members share information resources, and knowledge as tools of equitable sustainable development. Also, we could identify the International e-Development Resources Network (IeDRN) that has as one of its aims the identification of the need to assist developing countries and emerging economies to formulate e-strategies as part of their goals towards developing the information society.

At the Africa regional level, New Partnership for African Development (NEPAD) has also set up an ICT Task Force, in addition to the Africa e-Commission, and the African Information Society Initiative (AISI), which has developed the National Information and Communication Infrastructure (NICI). There also exist sub-regional initiatives such as the West African Telecommunications Regulators Association (WATRA), which serves as a consultative and collaborative body and structure for the regulation of telecommunications delivery. In the same vein, the Monetary Community of Central Africa (CEMAC) has given serous consideration to ICT as a force in their regional integration program. In Southern Africa, members of the Common Market for Eastern and South Africa (COMESA) have formed an Association of Regulation of Information and Communications of Eastern and Southern Africa (ARICEA) to coordinate, deliver, improve and harmonize the ICT sectors.

There are also several structural changes in the pattern of international cooperation that could foster the development of e-learning networks in Africa. For instance, as opposed to the dominant one-way method of international technical cooperation and exchange, there is a shift to cooperativeness between developed countries institutions and those in the developing countries. There is consciousness that ICT have brought the strengths and weaknesses of organizations to the fore to the extent that institutions, irrespective of their locations, recognize the gaps in their activities, which other ICT can fill.

Concluding Remarks

In this article, we have examined the global trend in networking for e-learning as part of the global reconfigurations that are occurring to achieve the delivery of education to all that need it. More importantly to us is the examination of the strategies identifiable in Africa as strategies adopted to tap into this development. We observed in addition to the fact that Africa's educational deficits are huge, the e-learning networking options accessible and available to the region seems to be very restrictive. The implications of this observation on the hope of achieving educational coverage to a relatively large number of African citizens are immense in view of the expectations that ICT-driven distance education and e-learning strategies might offer Africa a bright hope to create the required manpower crop relevant for her development.

African higher educational institutions have for many years faced deteriorating quality, unsustainable financing, and limited enrollments (World Bank, 1997). E-learning networks could provide alternative strategies for cost sharing and for leveraging access to educational services. Kinyanjui (2002) has suggested that more meaningful and productive collaboration is required

between developed and developing countries if the expectations of Africa regarding increasing access to education through e-learning and other forms of distance education strategies is to be achieved. In a recent meeting in Kenya, the Nigerian Executive Secretary of Science Academy of Nigeria (SAN) called on African institutions to embrace collaboration as a strategy of overcoming local problems in education.

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