

Promoting E-Learning in Distance Education Programs in an African Country

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1. Introduction

The idea of widening access to education, promoting independent and lifelong learning and adopting alternative approaches to delivery of education is prominent in the goals of education in Ghana. To facilitate human resource development in the country and widen access to education at all levels, the educational policy of the country has emphasized the promotion of e-learning in its distance education programs. Supported with information and communication technology, thousands of people from remotest parts of countries have been able to access education through distance learning [1].

The traditional notion of education is the type of teaching and learning that occurs in personal contact between the teacher and the learner in the classroom setting. This is anchored in the reality that teaching and learning take place at same time and same place. With the introduction of new communication technology it has become clear that formal, informal or non-formal teaching and learning at the higher level could also be done via technology. The rapid development in learning theories and advancement in technology has made it possible to shift from institution-led learning to own-time self-learning at a distance using e-learning platforms. Thus from face-to-face teaching to self-paced-learning, which is moving towards flexibility and openness. This experience has progressed to the alternative delivery system known as e-learning. E-learning as in the sense of electronic delivery of education for students who are separated from their teachers both in time and space has existed and operated under different terms such as distance education, distance teaching and distance learning for over one hundred years in the more developed regions and for one or two generations in the developing regions. Since e-learning thrives on information and communication technology, the advancement in technology gives direction to e-learning provision in Ghana. Using secondary resources this chapter assesses the progress that has been made on the promotion of e-learning in tertiary distance education programs in Ghana. Though e-learning can support both on-campus and off-campus (distance learning) programs, the focus of this chapter is how e-learning is being utilized in distance higher education programs in Ghana. The first section discusses the e-learning concept in distance higher education, followed by an assessment of education in Ghana with special focus on distance learning. The final sections discuss on efforts at promoting e-learning in Ghana and the challenges thereof.

2. The E-learning concept in distance higher education

Traditionally, education in which teachers and learners are separated by time and distance has been referred to as distance education or distance learning. Distance education could be explained as planned learning that normally occurs in a place that is different from where the teaching takes place. It requires special techniques of course design, instruction and methods of communication by electronic and other technology. Distance education could be offered at the basic, secondary or higher level of education. It could also be for formal or non-formal educational programs. The term e-learning on the other hand is relatively new in the field of education. Much as it has its roots in relatively older fields such as correspondence course, distance education/teaching or distance learning, it is an educational practice that is gaining prominence in the world of education for the past 15 to 20 years. E-learning comprises all forms of electronically supported learning and teaching. It covers a wide set of applications and processes, such as web-based learning, computer-based learning, virtual classrooms, and digital collaboration. E-learning is essentially the computer and network-enabled transfer of skills and knowledge. In e-learning content is delivered via the internet, intranet/extranet, audio or video tape, satellite TV or CD-ROM. It can be self-paced or instructor-led and includes media in the form of text, image, animation, streaming video and audio [2].

The combination of distance education and e-learning can take different forms. There could be pure distance learning as in learners working alone either online or with print and video materials. There could also be partial distance where learners work independently but also regularly meeting with others who are studying the same curriculum. A third model which, is blended learning combines face-to-face tutorials with distance learning. Another model, which is not the focus of this chapter, could be classroom supplement where online learning is used to facilitate regular classroom work as in purely on-campus academic programs. In each of these models, electronic technologies provide additional resources and expanded opportunities for two-way communication between the learner and the instructor or educational agency [3]. The influence of electronic facilities on education at a distance has contributed to its description with terms such as open learning, technology-mediated learning, online learning and virtual campus all of which could be used inter-changeably to mean one thing – e-learning [4].

The growing demand for work and study have made most higher education institutions to utilize e-learning tools to support the interactivity in distance education programs. The use of e-learning tools for teaching and learning at a distance implies teacher-directed learning activities using computers, completing and submitting assignments electronically, participating in-group chats involving near-simultaneous written dialogue, and giving feedback electronically. In this process learners organize their learning independently which make them take over some of the roles of the instructor [5]. The use of e-learning tools in a teaching learning process facilitates a high level of interaction among learners, which help to overcome the isolation in distance learning. Because greater emphasis is placed on student interaction and reflection, e-learning has been found to be better than the purely print-based distance learning courses [6]. In addition to freeing current students to study at times and in places convenient for them, e-learning as part of distance education offers the potential of serving additional students who, for a variety of reasons, cannot or do not want to enroll in face-to-face classes or tutorials. Distance education, particularly via e-learning, can adapt to the scheduling needs of students and teachers. It can also address the specific learning needs

of students. E-learning helps to remove distance constraints and promotes interpersonal communication dynamics. It is explained by [7] that in the use of the e-learning tools for teaching and learning, students process information electronically rather than through face-to-face contact with teachers and other students.

In the light of the various developments in communication technology and its relative impact on distance education. In [8] Bates has defined three generations of distance learning as follows:

- First generation learners studied alone, with limited contact from the educational provider as in correspondence study
- Second generation distance education provides learning resources in one or more media and support services usually in a face-to-face mode
- Third generation distance learning provides learning resources in one or more media and interaction among learners as well as between the tutor and learner via conferencing technologies (audio, video, computer), email or face-to-face meetings

These generational phases show how electronic facilities have changed the face of the delivery of education to enhance interactivity.

The application of e-learning has been evolving in parallel with the arrival of newer and intelligent technologies. With the increasing desire for education at all levels and the commitment to attain the EFA goals coupled with the flexibility and dynamism in e-learning, the philosophy is constantly emerging as the most convenient way of responding to the growing need of education. E-learning is breaking the barriers of space and time, it provides the population with truly equal opportunity and an efficient way to continue education and personal development, in line with the massive and effective access to higher education in the current society of knowledge. It also permits a new type of alliance between the university and business, the state and diverse organizations. E-learning is in use in many developed and developing countries, providing varied educational opportunities to meet the varied needs of learners.

E-learning presents tremendous educational opportunities for women as well. The potential of e-learning tools in facilitating interaction at a distance and creating artificial social presence makes it suitable for the learning styles of women who find it difficult to leave home for on-campus studies. Generally e-learning makes learning more productive and more individualized, gives instruction a more scientific base, makes it appropriate and more effective, more immediate and equalizes access to all educational resources provided one has the connectivity. The potential benefits of e-learning include cost-effectiveness, enhanced responsiveness to changing circumstances, consistency, timely content, accessibility, and more rapid feedback all of which go to suit women and make higher education accessible to them. Using connected communication tools both male and female students can decide about their studies, learning time, place and resources in a more convenient way. They can also work in more supportive environments, seek help from tutors and colleagues, and share their learning experiences and ideas in a cosmetic and productive fashion [9].

The discussions so far has shown the utility of e-learning tools in enhancing interactivity in distance learning programs for both men and women. In spite of the potential of e-learning tools there has been intellectual argument over its ability to promote social presence in a teaching learning process recognizing that in traditional classroom social presence enhances instructional delivery and the classroom experience. Social presence implies the connections

between participants and the tutor to enhance student satisfaction, perceptions of learning, and retention. Various studies have however been undertaken to justify the possibility of creating a social presence in an e-learning platform. A richer, more engaging learning community can be formed in the online learning classroom through the creation of online communities to fulfill the human need for social interaction with peers and instructors in an online class. A study by [10] indicates that students agreed that seven of the nine functions provided by the web-based online course management system enhanced their learning in the following ways: private email (92.3%), calendaring (88.5%), course notes (88.5%), discussion forums (84.5%), online grades (84.5%), assignment descriptions (80.8%), and online quizzes (80.8%). Another study has also been observed by [11] that email and other Internet programs are effective tools for interaction as well as to make a bridge of communication between both tutors and learners. In their study most of the learners (94%) gave their opinions that email technologies supports the teachers or tutors to consult in a better way while almost 82 percent learners showed eagerness to communicate with teachers by email. These confirm the possibility of using e-learning tools to create social presence in a distance education program. With the technological advancement, the distance and isolation in the distance learning system has been overcome to a very large extent. An account of the sorts of engagements that go on in mobile telephony, Facebook and twitter for instance testify to the possibility of having a social presence in e-learning programs which can be harnessed to support distance education programs in a developing country such as Ghana.

2.1 Education in Ghana

Following independence, Ghana continued to search for a system of education that is relevant to the world of work, adequate for rural development and the modernization of its agriculture-based economy. The country has also been interested in a system of education that seeks to promote national and cultural identity and citizenship. The mission of the Ministry of Education is “to provide relevant education to all Ghanaians at all levels to enable them acquire skills that will assist them to develop their potential, be productive, facilitate poverty reduction and promote socio-economic growth and national development” [12].

It is estimated that Ghana has 12, 130 primary schools, 5,450 junior secondary schools, 503 senior secondary schools, 18 technical institutions, 38 training colleges, seven theological colleges, eight tutorial colleges, 10 polytechnics, six public and 13 private universities that serves a population of about 20 million. Total school enrolment is estimated at almost 2 million with a breakdown of 1.3 million primary; 107.600 secondary; 489,00 middle; 21,280 technical; 11,300 teacher training; and 5, 600 university [12]. There is increase in educational facilities but this does not match the growing population and their educational demands.

In the year 2004 the Government of Ghana set up an Education Review Committee to review the education policy of the country. This was in response to the demands of education in a fast changing world that is driven by science and technology [13] [14]. In connection with global trends and the potential of information technologies to facilitate teaching and learning and productivity in the world of work, the Committee had the responsibility to examine the use of information technology for distance learning at all levels of education in the country. The Committee recommended independent continuous lifelong learning through open and distance learning modes instead of a one-shot formal school

experience. The focus of the policy of education in Ghana has made distance education and the use of e-learning facilities in education very critical then.

In addition to the policy provisions, the current state of education in the country coupled with limited space for the increasing enrolment makes it crucial to promote e-learning. There is the challenge of limited space and a mismatch between the qualified applicants and existing facilities. A high percentage of qualified applicants do not gain admission to existing universities to pursue further studies. Available statistics indicate that from 1996-2001, only about 32% on the average, of qualified applicants for admission into the universities, and about 54% of same for admission into the polytechnics, were actually admitted. The figures have not changed much over the period. For the 2005/2006 academic year, 55% of qualified applicants were admitted into all the public universities and 78% into the polytechnics. For the same period, statistics indicate that the male-female enrolment for both the universities and polytechnics has increased slightly meanwhile the gap is still very wide. In 2005/2006 academic year the male to female enrolment ratio was 65:35 for the universities and 70:30 for the polytechnics. This is far below the national norm of 50% males to 50% females. At the tertiary level about 5,000 undergraduates are enrolled in secular degree-granting programs in the existing nine private institutions [15].

2.2 Focus on distance learning

For decades the country was faced with a situation of turning away a large number of qualified applicants every year because of the limited space available for the enrolment of qualified applicants especially at the higher level of education. The Government of Ghana then planned to use distance learning to respond to the growing demands for higher education in the country and to decongest the campuses of the public universities. The government of Ghana has thus adopted distance learning as a viable complement to the conventional face-to-face education.

The mission of distance learning program in Ghana is to make quality education at all levels more accessible and relevant to meet the needs of Ghanaians in order to enhance their performance and improve the quality of their lives. Specifically governments of Ghana have sought to use distance learning to:

- provide opportunity for a large number of qualified applicants who do not get admission into the face-to-face programs as a result of limited facilities to have access to tertiary education
- create the opportunity for work and study
- increase access to and participation in education at all levels for all
- facilitate progression through the education system from basic to tertiary
- improve the capacity of Ghanaians to cope with the technological advancement and the knowledge society and be able to enhance their contribution to nation building
- increase equality and democratization of education
- provide cost-effective and affordable education
- serve as an avenue for financial resource mobilization for the public universities

Currently four of the public universities, University of Ghana (UG), University of Cape Coast (UCC), Kwame Nkrumah University of Science and Technology (KNUST), University of Education, Winneba (UEW) are offering higher education programs in a dual mode. The higher education distance learning program was first begun in UEW in the year 1996, followed by UCC in 2001, then KNUST in 2004 and finally UG in 2007. Before then, in

collaboration with the Commonwealth of Learning, the University of Ghana, had been delivering a Diploma in Youth in Development Work since 2001. The programs are being patronized greatly by both males and females in the country, and characteristic of most distance learning institutions the percentage of female enrolment cannot compare to that of on-campus programs. For instance, statistics of the various institutions indicate that UEW, which began in 1998, has approximately 7000 students with 53 percent females and 46.5 percent males at its Level 300 for the 2006/7 school year; UCC which began in 2001 has over 18,000 students, 49.7 percent females and 50.2 males in the Dip. Ed. Courses [16].

All the four universities that have started distance learning (UG, KNUST, UCC, UEW) are now dual-mode institutions. As a practice for parity of esteem and standardization, the institutions use the same faculty, curriculum, course structure and content for both the on-campus and the distance learning students. The admission and examination process is similar for both sets of students. Similar matriculation and graduation programs are organized for both sets of students as well. Delivery mode at a distance has been predominantly print-based supported with regular face-to-face tutorials at the various learning centers. While some institutions conduct both mid-semester and end-semester assessments at their centers in the regions, others do it at a central point, usually the main campus of the university [17].

The review of the tertiary distance learning programs raises several issues of concern. It is exciting to know that the various programs are providing higher education opportunity for people who though qualify, might not have had the opportunity to pursue higher education. An institution such as IEDE has made conscious effort to enroll more women, which has contributed to increase female enrolment on the program. Available report also indicates that IEDE is making effort to use facilities such as radio to compliment delivery.

There are however challenges which have to be considered for a better equitable provision of higher education in the country. To date the print media continues to be the most medium used by the various institutions offering higher distance education programs. The distance learning programs are mainly print-based supported with occasional face-to-face where students meet their tutors at a center for discussions. Assignments are either hand delivered or mailed by post. Students meet at a designated center to write their end of semester examinations. In cases where course materials are not ready, lecturers either meet to lecture the students in the various centers or students join the on-campus lectures. Distance learning students also share the already over-stretched facilities such as library spaces with the on-campus students. Meanwhile the purpose is to use distance education to decongest the various campuses. Allowing distance learning students to share libraries, attend lectures and share other on-campus facilities will no doubt congest the system further. Much as these educational processes create opportunity for those who will otherwise not gain admission to pursue their life dream education, it presents enormous challenges to the institutions and most especially learners from remote parts of the country. Travelling to centers for tutorials or lectures will not only expose learners and students to the risks of highway robbery and accident but may not be cost effective for the institution and the student as well. Considering distance learning as a mode that meets women's lifestyle because they can conveniently work, keep their homes and study, excessive use of face-to-face interactions may not find them well. For some women, obtaining permission from their husbands could be more challenging than obtaining permission from the workplace [17]. A continuation of such practices may make the programs lose its distance learning philosophy and probably turn to be a face-to-face program instead. In this case

learners may be forced to leave their jobs more often and those who may not afford to leave the workplace or cannot obtain permission may drop out of the program. These are challenges that most countries, especially those in the developed world, have used e-learning to overcome. An institution could compliment the instructional materials with basic electronic media such as e-learning resources such as CDs copies of the instructional materials and course websites for effective communication and interaction among tutors and students, administrators and students and among students. A unifying body and an effective collaboration between the various institutions could facilitate the sharing of both academic and information technology infrastructural resources for promoting e-learning as well.

Considering the strength in e-learning in promoting interactivity and making education accessible to all, the distance learning institutions in the country are pushing for the incorporation of e-learning tools in its distance education programs.

3. Promoting E-learning for distance learning in Ghana

For the past ten years, the country has made the effort to introduce ICTs into the education sector to facilitate e-learning. This is in recognition of the key role that e-learning can play in making the existing higher education distance learning programs accessible to a wider section of the population [13] [14]. In 2004 Parliament passed into law Ghana's Information and Communication Technology for Accelerated Development (ICT4AD) policy, which is currently at various stages of implementation. This policy represents the vision of Ghana in the information age. In view of the need to have a coordinated, focused and properly managed approach to the adoption and utilisation of information technologies and to maximise the use of e-learning tools, the education sector decided to draw up a comprehensive policy on information technologies. Generally the policy document seeks to provide a clear purpose and rationale for how information technologies will be effectively integrated into the education sector, including identifying opportunities, issues, challenges and strategies that will be employed. The mission of the Policy is to articulate the relevance, responsibility and effectiveness of utilizing information technologies in the education sector, with a view to addressing current sector challenges and equipping Ghanaian learners, students, teachers and communities in meeting the national and global demands of the 21st Century.

The fundamental objective of the policy is to ensure that the Ghanaian education sector provides adequate opportunities for Ghanaians to develop the necessary skills, regardless of the levels of education (formal and non-formal), to benefit fully from the information society. In view of this the overall policy goal is to enable graduates from Ghanaian educational institutions - formal and non-formal to confidently and creatively use e-learning tools and resources to develop requisite skills and knowledge needed to be active participants in the global knowledge economy by 2015. The ICT in Education Policy is based on the premise that there are several key elements that underpin the use of information technologies. These include teaching and learning; management and administration; communication; and access to information. Furthermore, it is recognized that these elements will be dependent on policy reforms, both within education sector as well as within other related sectors including communications, local government and rural development. The policy document focuses on seven thematic areas, which covers management, capacity building, infrastructure, information technologies in curriculum, content development,

technical support for maintenance and monitoring. The policy document acknowledges that if effectively used, e-learning tools can among other things:

- Provide multiple avenues for professional development of both pre-service and in-service teachers, especially through distance education
- Facilitate improved teaching and learning processes
- Improve teacher knowledge, skills and attitudes and even inquiry
- Improve educational management processes
- Improve the consistency and quality of instruction both for formal and non-formal education
- Increase opportunities for more student centred pedagogical approaches
- Promote inclusive education by addressing inequalities in gender, language, disability
- Widen the traditional sources of information and knowledge
- Foster collaboration, creativity, higher order thinking skills
- Provide for flexibility of delivery
- Reach student populations outside traditional education systems

Concerning access to infrastructure, the expected impact on end-users (learners, teachers, managers and administrators) will very much depend on affordable and continuous access to hardware, software and connectivity. This in turn will be dependent on the availability of appropriate physical infrastructure including power sources such as electricity or solar.

The general policy efforts is directed at using ICTs to facilitate education and learning within the educational system and promote e-learning and e-education as well as lifelong learning within the population at large. Under the thematic area to use ICT for capacity building, the policy has an objective of using distance education and virtual learning systems to reduce cost and the number of teachers who leave the classroom for study leave. Strategies for achieving the objective includes postgraduate distance education program for faculty in ICT, building infrastructure to facilitate distance learning for teachers and setting up digital e-libraries to support distance learning programs. Similarly, in the third thematic area, which is on infrastructure, e-readiness and equitable access, the policy seeks to facilitate equitable access to ICTs for all schools and communities. Some of the strategies under this theme again seek to develop infrastructure to support distance education and put in systems that will help bridge the rural and urban divides.

The thematic area on content development seeks to develop appropriate content for open, distance and e-learning. The policy acknowledges that

- Digital content is critical to e-education because it can be easily and randomly accessed, adapted and manipulated, and is accessible from many locations
- Digital content is easier and less expensive to update and distribute
- Development of digital content will promote the use of indigenous culture in the education system
- Multimedia digital content can facilitate effective learning

As part of its strategy under this theme, the policy proposes to

- Institute and organize cost effective distance education program to cover all levels of education in the formal and informal sectors.
- Promote the development and utilization of a national educational portal / website which will provide links to help teachers, students and the public access educational information readily.

Much as one will question the extent to which some of these strategies have been implemented or will be implemented, it is good to know; at least that the country has set up

these plans. This gives an indication that in response to international trends, the Government has the 'will' to utilise e-learning systems to support distance learning [13] [14]. A review of current trends of information technology infrastructure provision will give an idea of the extent of the implementation of the ICT4D Policy.

The Ministry of Communication has reported that the country is likely to exceed the telephone penetration target for universal Internet access by 2012 and the UN's Millennium Development Goal targets for 2015 for telephone lines, cellular subscribers, personal computers in use and Internet users [14]. In a 2007 World Bank Survey on ICT and Education in Africa, it was remarked in the Ghana country study that compared to other West African countries, Ghana is among the leaders in the use of ICTs. As one of the first African countries to liberalise its telecommunication sector, Ghana has made tremendous progress in ICT infrastructure deployment. Available records from the Ministry of Communications for the year 2007 indicate that telephone subscription has hit the eight million mark, giving a telephone density of nearly 40%. Fixed lines increased to 376,509 by the end of 2007, from 248,900 lines in 2001. During the same period mobile phone users rose from 215,000 in 2001 to 7.6 million, bringing the total for fixed and mobile subscribers up from 463,900 to 7,980,552 at the end of December 2007. Telephone penetration at the end of the period was 36.3%. Mobile phone services cover all of the 10 regions in the country, Internet subscription is estimated at 1.5 million users, while broadband subscribers number just over 13,000.

The first phase of the country's fiber-optic development is complete and this is expected to facilitate the deployment of ICT applications nationwide and the speedy implementation of the 20-year ICT4D policy [18].

The Internet services that are provided on mobile telephony can be used to supplement e-learning programs in the country. The mobile telephony operators have made a substantial inroad into the market over the last years with an estimated mobile subscriber base of 8 million as at the end of 2009. Mobile telephony now represents 63 percent of the total telecom market. Ghana has six licensed cellular/mobile operators which include Vodafone (formerly GT Onetouch), MTN, Tigo, Kasapa, Zain and Glo (Globacom). There are two fixed line operators which are Ghana Telecom (Vodafone) and Westel (now Zain). The rest of the market is represented by fixed line voice products (18%), data services such as Internet/broadband, leased lines and VPN (3%) and international traffic (16%).

One of the direct results of the ICT for Accelerated Development (ICT4AD) policy is the establishment of the Ghana Information and Communications Technology Directorate (GICTeD) as the operational arm of the Ministry of Communications for ICT policy implementation and coordination of governmental ICT initiatives. GICTeD is expected to identify and promote the development of innovative technologies, standards, guidelines, and practices, among government agencies within the national and local governments, and the private sector, to enable Ghana become a technology-driven, knowledge- and value-based economy. It is envisaged that GICTeD will help Ghanaians create a world-class online economy and society through its work, as well as developing, overseeing, and coordinating Government's ICT programs on electronic governance and commerce, online services with their associated infrastructure elements, and the Internet.

Reports from the country's ICT sector and higher education institutions indicate that the Ghanaian tertiary education sector is the most advanced in the deployment and use of ICTs in the country. All the country's major universities have their own separate ICT policy, which includes an ICT levy for students. This enables students to have access to 24-hour

computer laboratories with broadband Internet connection. With funding support from the World Bank through Teaching and Learning Innovation Fund (TALIF), the Ghana Education Trust Fund (GETFund) and other funding agencies the National Council for Tertiary Education (NCTE) has been able to provide infrastructural and capacity building support to the distance learning programs in the public universities that are offering higher education distance learning programs. The various distance education institutions have been able to acquire basic facilities such as computers, internet connectivity, libraries, refurbishing of learning centers in the regions and other infrastructural and logistical support. Training support have over the years been received from both local and international institutions such as the NCTE, Ministry of Education Science and Sports, International Extension College of the United Kingdom and Simon Frazer University Distance Education Centre of Canada, British Overseas Development Administration (ODA), The Commonwealth of Learning in the areas of writing, formatting and editing of instructional materials, learners support services and general administration and management of distance learning programs. These supports have been very useful in building the local capacity/expertise for e-learning.

A broadband wireless Internet and voice telephony facility has been inaugurated on the campus of the Kwame Nkrumah University of Science and Technology (KNUST). Known as the KNUST E-Campus Network, the facility has the potential of transforming the mode of teaching and learning on campus, as it would provide members of the university community with in-room and on-campus wireless Internet and voice telephony. The project is the first phase of a comprehensive e-learning plan, which is aimed at integrating all educational institutions into the global ICT network with KNUST as the hub.

The University of Ghana and the Kwame Nkrumah University of Science and Technology have proposed to run a special regional university under a five-year Pan African tele-education project. With the support of the Indian Government and the African Union when completed, the project will provide open access broadband connectivity nationwide at affordable rates. Currently, within the African context, although the high-speed broadband access, vital to modern businesses, is now available in many capital cities and major towns, it comes at a high price.

It is anticipated that all these efforts will go to improve e-learning programs in the country.

4. Issues emerging and conclusion

There is evidence of some technological breakthroughs that will support e-learning for distance education. There are however persistent in country challenges which must be noted if the country can make good progress in the promotion of e-learning.

- Access to information technology facilities still remains highly inadequate and unevenly distributed throughout the country. There is an urban bias with rural communities lagging behind.
- The capacity of teachers and educators to manage e-learning programs still remains low. While some do not have the adequate skills, others are averse to using e-learning platforms
- There is inadequate collaboration between the various stakeholders and agencies to check duplication and efficient utilization of the few available e-learning resources
- There is insufficient equipment and slow Internet connectivity in most parts of the country

- There is also unreliable access to electricity
- Not all tertiary institutions in the country are equally endowed and there are instances where students are forced to patronize Internet services that are run by the private sectors such as cyber cafés on campuses

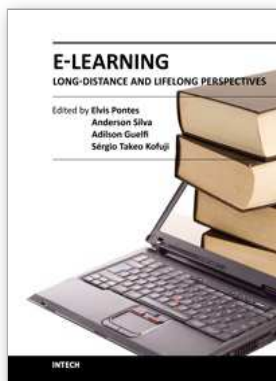
In addition to the challenges enumerated above, there are some gender specific challenges that affect women most. There is relatively high level of illiteracy, low levels of ownership of computers, telephone lines, radios, televisions, and access to the Internet affect among women [19]. Studies have shown that the manufacture of ICT systems is not gender friendly [20]. Computing remains a heavily male-dominated field. Only a few Internet content is available that meets the information needs of women in developing countries in a form they can use. Women have also not been fairly treated in terms of portrayal on the Internet. In some cases the Internet has been used for women's sexual exploitation and harassment. There is trafficking of women through the Internet, pornography, sexual harassment and use of Internet to perpetuate violence against women. In most parts of the country, women are not culturally permitted to share the same public space with men. They may thus be challenged in sharing e-learning facilities that may be installed in public places [16] [21] [22]. These and many other factors may not encourage women to use the Internet for more serious business such as e-learning. Subsequent studies could explore how both men and women are making use of the available ICT facilities for distance learning and the support they require.

E-learning has come to stay. Developing countries have no excuse for not utilizing it fully to support their distance learning programs. With conscious policy directives, basic e-learning resources could be fully utilized to supplement and improve the delivery of the existing distance learning programs.

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E-learning enables students to pace their studies according to their needs, making learning accessible to (1) people who do not have enough free time for studying - they can program their lessons according to their available schedule; (2) those far from a school (geographical issues), or the ones unable to attend classes due to some physical or medical restriction. Therefore, cultural, geographical and physical obstructions can be removed, making it possible for students to select their path and time for the learning course. Students are then allowed to choose the main objectives they are suitable to fulfill. This book regards E-learning challenges, opening a way to understand and discuss questions related to long-distance and lifelong learning, E-learning for people with special needs and, lastly, presenting case study about the relationship between the quality of interaction and the quality of learning achieved in experiences of E-learning formation.

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