Impact of Icts on Higher Educational and ODL Institutions: an Ethiopian Study

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Abstract-There has been an unprecedented growth in Open Distance Learning in the past decade throughout the world. Distance Education has gained popularity spreading education not only to those who are deprived of opportunities for higher education but also to those sections who aspire to pursue higher education at their flexible pace and place. Higher education institutions across the world have been adopting ICT teaching and learning technologies in an effort to create an environment for both students and their instructors to engage in collaborative learning and gain access to information. Access to information through ICT increases the information accessible to individuals to support them in trying new strategies, thinking and creativity that are reflective in practice aimed at engaging them to new innovations through the use of ICTs. Present study is discussing about the impact on ICTs at Higher educational and Open and Distance Learning Institutions in Ethiopia. Actually, the Ethiopian government has an ambitious e-government strategy which covers various sectors such as education, health, agriculture, and public administration. As a core part of the nation-wide e-government strategy, the distance education project, called 'School Net', was launched in 2003 with support from UNDP. In this paper an attempt has been made to study different Universities both educational and ODL institutions and their ICT Centers, their working pattern and functions in fulfilling their objectives of providing education in this technological age. In conclusion, we can say that how these developing countries like Ethiopia to overcome the problems relating to the perfect implementation of ICTs to provide better educational opportunities to their users.
Keywords –Distance education, Higher education, Information and communication technology, Open learning.

I. INTRODUCTION

Ethiopia, one of the developing country, is the one that expects ICT as an enabler for development. The Prime Minister of Ethiopia, MelesZenawi said, 'We did not believe serious investment in ICT had anything to do with facing the challenges of poverty that kills. Now I think we know better. We recognize that it is a vital and essential tool for fighting poverty – for beating poverty that kills – and ensuring our survival' (Zenawi cited in Farrell and Issacs 2007: 3-4).

Distance education in Ethiopia is a recent phenomenon. It is started with the emergence of private colleges and universities in the country. So far it is provided at higher education level including diploma and degree. There is also the beginning at Masters' level. In fact most of the Masters' level programs are given in cooperation with foreign institutions. Some examples in this respect include the cooperation between St. Merry University College and Indira Gandhi Open University and Addis Ababa Commercial College and UK Open University. University of South Africa (UNISA) has also opened a distance education campus in Addis Ababa and started offering programs at second degree level. Enrollment in distance education in the country is fast increasing. It reached to about 22 thousand in 2005/06 from about 5 thousand in 2003/04. The average total annual growth in the period 2003/04 to 2005/06 has been 152.9%.

It should be noted that the analysis is done (Annual Education Statistical Abstract, Ministry of Education 2007) at national level for the reason that higher education is not geographic area specific. The higher education located in Addis Ababa provides education to students coming from all over the country.

It is expected that the demand for distance education in the country continues to increase for the coming ten years. The basic reasons for the demand to increase are the following:

- The continued need in business, agriculture and industry for specialization and specialized skills.
- The competitiveness of the labor market.
- The introduction of distance education by government institutions.
- Expansion of private colleges and universities that offer distance education.
- The increasing need from working people to acquire education and training in a flexible learning environment.
- The cost effectiveness of the education system for students.
- Advances in ICT technology that simplifies the learning and teaching Process in a distance basis.
- The envisaged high economic growth of the country.

Based on the data of 2003/04-2005/06 obtained from Ministry of Education the demand for distance education will reach about one million by the year 2016/17. The projected enrollment by sex is 471,487 female and 589,929 male by the year 2016/17.

ENROLLMENT IN DISTANCE EDUCATION FROM 2002/03 TO 2005/06 IN ETHIOPIA

Year	Enrollment in Number			Average Annual Growth Rate in %
	Male	Female	Total	
2003/04	4,426	599	5,025	-
2004/05	5,109	455	5,564	10.7
2005/06	19,246	2,736	21,982	295.1

Source: Annual Education Statistical Abstract, Ministry of Education 2007

PROJECTED DEMAND FOR DISTANCE EDUCATION FOR THE COMING 10 YEARS

Year	Projected Enrollment in Number		
	Male	Female	Total
2005/06(actual)	19,246	2,736	21,982
2006/07(estimated)	26,271	4,369	30,640
2007/08	35,860	6,978	42,838
2008/09	48,948	11,144	60,092
2009/10	66,815	17,797	84,611
2010/11	91,202	28,421	119,623
2011/12	124,491	45,388	169,879
2012/13	169,930	72,485	242,415
2013/14	231,954	115,759	347,713
2014/15	316,617	184,867	501,484
2015/16	432,182	295,233	727,416
2016/17	589,929	471,487	1,061,416

Source: Projected based on the data of 2003/04-2005/06 obtained from Ministry of Education and the assumptions mentioned above.

II. PURPOSE STATEMENT, VISION AND VALUES

Distance Education has traversed four to five 'generations' of technology in its history. These are print, audio /video broadcasting, audio/video teleconferencing, computer-aided instruction, e-learning/ online-learning, computer broadcasting/ web casting, etc. In some countries radio (FM channel) has become very viable form of broadcasting educational programs. MP3 players, PDAs and Smart Phone have provided additional medium for the distribution of distance education. The technology required for the envisaged distance education institution includes computers, fax machine, photocopies (canon), printers, etc. The following are some of the institutions providing distance education Programs:

* Addis Ababa University offers degree program.
* St. Marry University College offers a standard two years Master's program and MBAprogram; a degree program and diploma program.
* Admass College offers degree program and diploma in law.
  * Alpha University College offers degree program.
  * Gondar University offers degree program and Master's program

III. EXPERIMENT AND RESULT

3.1 Alpha University College (Auc)

The present Alpha University College (AUC) grew out of the distance education institution established by an Ethiopian in 1981. The objective of the institution was to give vocational and technical training to those who are unable to attend regular classes.The Ministry of Education (MoE) recognized the institution originally as Institution of National Vocational and Technical Distance Education Enterprise. It was under this name that the institution started to play an active role of expanding education services in the country.

At that initial stage the training programs included Auto Mechanics, General Mechanics, Wood Work, Electricity, Home Economics, Agriculture, Personnel Management, Purchasing and Production Management.With this institution as its foundation, Alpha Education and Training Share Company (AETSCO) was established in 1994.

The founders of the company were Ethiopian businessmen and other experienced people with a wide range of professional training in different fields. Since its establishment, AETSCO has been engaged in accredited distance higher education programs leading to certificates, diplomas and degrees. Tens of thousands of distance education students have graduated and other tens of thousands are currently following different diploma and degree programs including Economics, Accounting, Business Management, Information Technology, Public Administration and Development Management.

After rigorously assessing its performance of over a decade long experience, AETSCO decided to realize its plan of expanding its services both qualitatively and quantitatively. Accordingly, various kinds of programs for both at a distance and regular (day and extension) students are offered. For the efficient realization of the company's vision and mission, highly qualified and experienced professionals are brought together to constitute the core of Alpha University College.

3.2 Hawassa University

The School of Continuing and Distance Education at Hawassa University has started in HawassaCollege of Agriculture by training few students at diploma level in agricultural disciplines in evening classes. The program was known as Continuing Education Program (CEP) which the name well known even today. Gradually CEP expanded its program to the summer-in-services trainings in different disciplines.

Later CEP was restructure and renamed as Continuing and distance education (CDED) with launching distance education program in 4 disciplines namely Governance and Development, Law, Management and Sociology though the distance programs was pended by Ministry of Education for sometimes.

Currently CEP is working with new structure in line with BPR and renamed as school of Continuing and Distance Education (SCDE). SCDE is running many different programs in collaboration with hosting departments ranging from short term training to first and second degree programs in evening, weekend and summer in four different campuses (main campus, Hawassa College of agriculture, College of Medicine and Health science and Wondo Genet College of Forestry and Natural Science). There are more than 8000 students in all these campuses and programs.

3.3 Mission

The school of Continuing and Distance Education provides quality training and education at various levels ranging from short term trainings, tailor-made programs, first and second degree programs based on the demand of the society at their convenient time out of the regular program.

Hawassa University School of Continuing and Distance education endeavors to become the leading school in the country in providing quality training or education to the vicinity community or community from anywhere else.

3.3.1 Objectives of the SCDE

1)   To provide quality education to the community at their convenient time out of regular program including distance mode of course delivery with reasonable tuition fee.
2)   To contribute human capacity building for government and non-government organization seeking in-service training without detaching from their career.
3)   To contribute in academic attraction/staff retention effort by creating additional income to the academic staffs.
4)   To play important role in generating income to the university (at least 20% of the of the revenue).

3.3.2 Currently Ongoing Programs

Under Graduate programs
1)   First degree evening and weekend programs in main campus
Accounting
Civil engineering
 Computer science
 Economics
 Information Technology
 Sociology
 Management
     Law
  Governance and Development studies
2)   First degree evening and weekend program in college of Medicine and Health science
Nursing

Medical laboratory technology
Environmental Health science
3)   First degree weekend program in college of agriculture
 Human nutrition
4)   First degree weekend program in Wondo Genet College of Forestry and Natural Resources
 GIS
5)   First degree summer program in main campus
Biology
  Chemistry
  Physics
  Mathematics
  Civics
English
  Law
  Computer science
 Economics

Post Graduate programs
1.   Second degree weekend and summer programs
Water resource engineering and management
Development studies
Governance
Human resource management
Marketing management
Finance and Accounting
Development Economics
Educational leadership
Cooperative, development and leadership
Food science and post harvest technology
Human nutrition
Soil science
Animal nutrition
Rural development
Agronomy
Crop protection
Plant Breeding
Agroforestry

3.3.3 Open University Distance Education in Ethiopia
Objective of Ethiopian Management Development Program
• To improve the managerial efficiency of the regional and federalgovernments, thereby enhancing their capacity to implement variousdevelopment activities and accelerate the decentralization process in the country.

3.3.4 Types of Program Delivered by the OU
•   Ethiopian Management Development Program
    ➢   Professional Certificate in management
    ➢   Professional Diploma in management
•   MBA
    ➢   Two year course for those who have completed professionalDiploma
    ➢   Three year course for new students

3.3.5 Admission Requirements
•   •* Professional certificate in management
    ➢   Completion of secondary school
    ➢   Pass in the entrance exam
•   * MBA

> ➢ BA/BSc and above or equivalent from any recognized Higher Institution
> ➢ Diploma in professional management

3.4 Ethiopian Distance Learning Association (edla)

The Ethiopian Distance Learning Association is committed to the education of the Ethiopian youth in collaboration with grass root organizations including, The International Open College of Ethiopia, the Virtual School of Ethiopian Studies and the Ethiopian Virtual University. It is just starting its function now. Planning is going on.

3.5 Impact of ICTs in Education

In a poor country like Ethiopia where the 'digital divide' is more the rule than the exception, delivering instruction through the distance mode presents a significant challenge to educators. In a nation where the concern of most people is meeting their basic need for food, clothing, and shelter, access to information and communication technologies (ICT), especially the most modern ones, is very low on their list of priorities – and oftentimes, not considered a priority at all.

Nonetheless, ICT has had a major impact on open and distance learning (ODL) in Ethiopia. More than the availability of these technologies, issues such as geographical location, lack of knowledge and skills to use ICT, and financial constraints, are major considerations in deciding what ICT to use and in what combination. Indeed, the use of a particular ICT must not only address certain pedagogical concerns, it must aim to bridge the digital divide and democratize access to quality education.

Experience has shown that when a decision has been made to use a technology in ODL, this decision influences not only the teaching and learning environment; it leads to the development of new cultures, concepts, and understanding. Put simply, the introduction of ICT can alter and raise expectation among users and institutions alike.In a developing country like the Philippines where the 'digital divide' is more the rule than the exception, delivering instruction through the distance mode presents a significant challenge to educators. In a nation where the concern of most people is meeting their basic need for food, clothing, and shelter, access to information and communication technologies (ICT), especially the most modern ones, is very low on their list of priorities – and oftentimes, not considered a priority at all.Nonetheless, ICT has had a major impact on open and distance learning (ODL) in the Philippines. More than the availability of these technologies, issues such as geographical location, lack of knowledge and skills to use ICT, and financial constraints, are major considerations in deciding what ICT to use and in what combination. Indeed, the use of a particular ICT must not only address certain pedagogical concerns, it must aim to bridge the digital divide and democratizeaccess to quality education. Experience has shown that when a decision has been made to use a technology in ODL, this decision influences not only the teaching and learning environment; it leads to the development of new cultures, concepts, and understanding. Put simply, the introduction of ICT can alter and raise expectation among users and institutions alike. Actually, the Ethiopian government has an ambitious e-government strategy which coversvarious sectors such as education, health, agriculture, and public administration (Dzidonu2006; Tadess 2006). As a core part of the nation-wide e-government strategy, the distanceeducation project, called 'SchoolNet', was launched in 2003 with support from UNDP (Hare2007). It aims to broadcast video lectures of main subjects, which can be seen on plasmatelevision displays equipped in classrooms, to almost all secondary and preparatory schools(about 550 schools) from the capital city, Addis Ababa through a satellite network (Kinde, 2007), and to provide the internet connection for the schools in order to supply usefulinformation about teaching and learning and to lessen the gap of education level between ruraland urban areas (UNDP 2005; UNESCO 2004).It seems that ICT brings about the development dramatically. However, there are not onlypositive reputations of ICT4D projects but also negative ones. For example, in the case of atelecentre which can be considered as a typical ICT4D project, many telecentre projects lacksustainability in reality (Oestmann and Dymond 2001; Etta and Parvyn 2003). In fact, in the caseof the SchoolNet project inEthiopia, many kinds of problems, such as, poor infrastructure, low skills for maintenance, low motivation of teachers and language problem used in the contents, were identified by the author .

3.5.1 Some benefits from ICTs

* ICT can increase access to education
* ICT can improve the quality of education
* ICT can motivate students

3.5.2 E-government

To realise the abovementioned benefits, many ICT4E projects have been implemented byInternational organizations, non-governmental organizations (NGOs) and developingcountries' governments. Amongst these

stakeholders, government may have the strongestinfluence since the educational sector is managed within a framework of national educationalpolicies and most schools are governmental ones. Actually, in the case of Ethiopia, theEthiopian government has implemented ICT4E project as a key component of the broadE-government strategy (Getahun 2006).

In the case of Ethiopia, the e-government projects such as the School Net (distance education),Health Net (telemedicine), Agri Net (agricultural information sharing) are classified asE-Services, which aim to provide better public services, while the Woreda Net (TV conferencebetween the central and local public offices) is categorized into e-Administration which aimsto improve work processes in the public offices.In the case of Ethiopia, particularly, the report from Addis Ababa University states that Addis Ababa city administration spent huge amount of money for ICT investment but the outcome is not as much as expected (Bekele et al. 2005). Moreover, in the case of ICT4E projects, negative statements are found on the documents from InfoDev/World Bank.

3.5.3 Techno-centric approach

One of the major reasons for ICT4D projects failure is a techno-centric approach. The weakness of the technology-centered approach is explained in terms of Information Systems (IS) projects generally and ICT4D projects particularly. In the case of IS projects in general, manyauthors (Laudon and Laudon 2004; Avison and Fitzgerald 2003; Checkland and Scholes 1990) Pointed that IS projects often do not achieve expected benefits because of a lack of consideration to broad factors beyond technology.

Secondly, when it comes to the IS projects in developing countries especially, there are moreimportance on the factors ,such as political, economic, organizational and cultural aspects thantechnology since there are more diversities, instabilities and contradictions in the society andorganization in the developing and transitional economy (Salazar 1999; Westrup el al. 2003;Sahay and Walsham 1996).

Figure 2.1: Onion-ring model of Factors Surrounding Information Systems
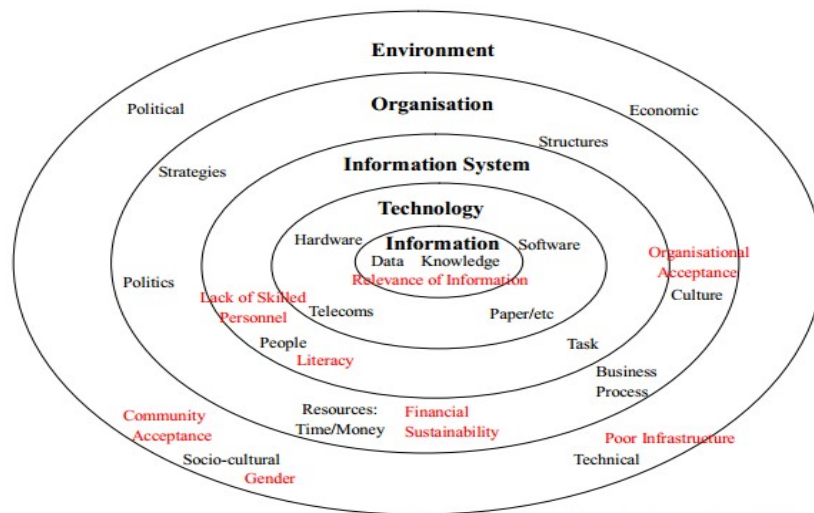
(Source: Adopted, with additional information, from Heeks 2007b: 5)

The above factors in the figure play an important role to pull down the Information systems.
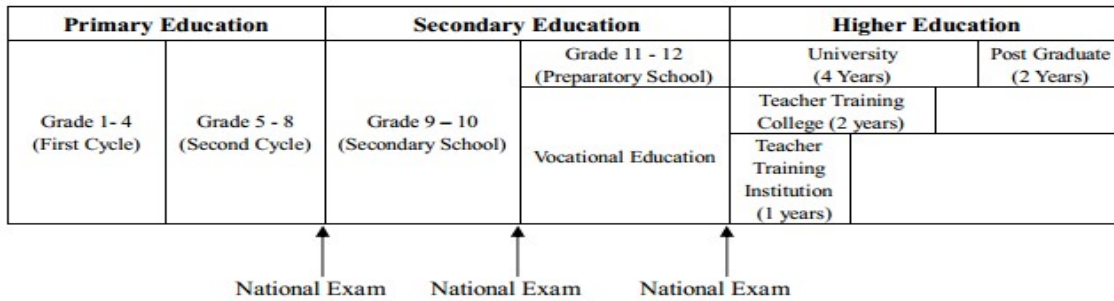
IV. CONCLUSION

we can say that The Federal Democratic Republic of Ethiopia is located in theEastern Africa. Ethiopia has about 1.25 million square kilometers land with approximately 75 Million populations (2004), and it is said that about 84% of the population live in rural areas relaying on traditional agricultural economy (Hare 2007). Some basic information of Ethiopia and the current education system in Ethiopia is shown on the figure below.

Table 3.1: Socio-economic Indicators: Ethiopia

Indicator	
Population	75.6 million (2004)
Languages	English, Amharic, Tigrinya, Oromigna, Guaragigna, Somali, Arabic, other local languages
GDP per capita (USD)	$114 (2004)
Human Development Index	169 (2005) (out of 177 countries) 170 (2004) (out of 178 countries)
Human Poverty Index	105 (2004) (out of 108 countries)
Expenditure on education (as a percentage of GDP)	4.6%

(Source: Hare 2007: 3; UNDP 2007)

Figure 3.1: Education System in Ethiopia

Primary Education		Secondary Education		Higher Education		
			Grade 11 - 12 (Preparatory School)	University (4 Years)		Post Graduate (2 Years)
Grade 1- 4 (First Cycle)	Grade 5 - 8 (Second Cycle)	Grade 9 – 10 (Secondary School)	Vocational Education	Teacher Training College (2 years)		
				Teacher Training Institution (1 years)		

National Exam   National Exam   National Exam

(Source: Satoru 2002: 59)

Ethiopian government regards education as an essential component of national developmentand highly prioritizes it (UNESCO 2004). For example, in terms of the national budgetallocation, education has been the second sector followed by 'national defense and publicorder and security' in the period from 1997/98 to 2000/01 (Checkole 2004). The Ministry ofEducation has developed the Education Sector Development Programme (ESDP) for severalperiods of years from 1997/98 (Yizengaw 2006).

However, there are much more negative indicators about the educational sector as thefollowing table shows (Table 3.2).

Table 3.2: Basic Indicators about Education in Ethiopia

Indicators	
Primary Gross Enrolment Ratio	84%
Primary Drop Out Rate	42.2%
Primary Completion Rate	43%
Number of Primary Age Children Out of School	4,473,000
Secondary Gross Enrolment Ratio	27%
Lower Secondary	36
Upper Secondary	7
Tertiary Gross Enrolment Ratio	2.4%

(Source: World Bank 2008b)

This table indicates that there are still many problems such as high dropout rate and relativelymuch lower enrolment rate in secondary and higher education. The Ethiopian ICT policystates that 'ICT is particularly crucial to Ethiopia because the vast majority of its populationlives in remote areas and continues to be disadvantaged educationally' (EICTDA2006: 26).

Though the ICT use in Ethiopia is lower level than other countries, it seems that the situationhas been improving recently. For example, the number of the Internet users has increased

Table 3.4: Internet Users in Ethiopia

Year	Users	Population	Penetration
2000	10,000	70,600,043	0.0%
2005	133,000	72,238,014	0.2%
2007	164,000	73,872,056	0.2%
2008	291,000	78,254,090	0.4%

(Source: Internet World Stats 2008)

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