CHAPTER 4: E-LEARNING EXPERIENCES AND PARADIGM SHIFTS

4.1 INTRODUCTION

The higher education has a responsibility towards the whole education system as it has towards the whole society (Sanyal). The question that has been tantalizing both Universities and ICT industry in Europe is –Do the Universities provide the kind of graduates that the industry wishes? If not, what should be done? There is no easy answer to this question. The topic of online education has recently inspired a great deal of discussion in USA and around the world and although the extent of growth is controversial, the number of online courses and programs in HEIs is increasing significantly. To understand the relationship between Universities and ICT industry, one has to explore the relationship between teaching and research. Stakeholders, such as employers, parents, and educators, have raised their expectations from the graduates in computer literacy (Johnson et al.). Given this, most of the universities have started offering computer literacy courses to all the students, however, to provide required computer-literate graduates, it is important to determine a desired computer literacy course and ePedagogy (Martin and Dunsworth).

There is no doubt that in statistical terms inequality in access to ICTs does exist between developed and developing nations. Most frequently the statistical disparities between countries regarding ICTs are based on measures of access to hardware and connectivity and the figures present a picture of developed world dominance in ICTs access. The United States has more computers than the rest of the world combined (Macleod). Internet technologies (including Web 2.0 technologies), virtual reality, and mobile devices are some of the many technologies used everyday for communication and entertainment, and learning (Chan and Lee). The findings however, warn that given the threats and opportunities of globalization, ICTs are either decreasing the inequalities in the world or increasing them.
4.2 E-Learning in Advanced Countries

4.2.1 Introduction

In the European context, the constitution of European universities (Magna Carta Universitatum), the universities have two functions: teaching and research. The constitution defines a university as “an institution that preserves, transfers, assesses and expands knowledge. It preserves and transfers knowledge through the educational process and it assesses and expands it through research.” ICTs revolution is a part of several other revolutions which are changing the education systems of western countries from modern into postmodern condition (Aviram and Tami). The extreme educational application of ICTs is virtual universities as the best examples of e-Learning but they are considered as threats to for-profit institutions (Goddard and Cornford).

The research from advanced countries reveal that government financial support for the universities has been decreasing and HEIs are forced to generate income, which is evident from the mushrooming increase in online courses offered by HEIs in most of the advanced countries (Davis). The significance of these new institutions, however, lies not in their direct impact because they actually provide a nominal part of higher education in USA. Rather, their implication is primarily indirect, operating through the perceived threat to established Higher Education Institutions (HEIs) in terms of their markets for students, and in terms of their demonstration effect (Goddard and Cornford).

4.2.2 Approaches

In a Higher Education institution in the North of England, Luck and Norton conducted a survey to explore and compare students' perspectives and experiences of face-to-face and online collaborative learning about the similarities or differences in undertaking education. The following results were reported: a. online learners favored collaborative learning and demonstrated rapid development; b.
F2F group appeared more confident about having achieved learning outcomes, while eGroup was self-critical and expressed self-doubts; and c. the e-Learning is rapidly growing without our proper understanding of the e-Learning process. Furthermore, the current approaches to teaching ICT favored by many institutions appears to be an integrative and substantive in which ICT skills are taught holistically to prepare students not only in technical competence but also technology-integration in teaching and learning (Chan and Lee).21

4.2.3 Development and Use Practices

In a research by Gray et al.,25 case studies were selected from 7 countries including both small and large scale projects37. The results revealed that nearly half of the projects were developing blended learning environments while others were constructing virtual classrooms, tele-teaching and collaborative learning. Likewise, In a study of twenty-two universities with a sample from twelve different subjects, (Lewis and Goodison) report that two main approaches to ICT developments are as popular in developed world:

1. Subject-level initiatives: DOI by the role-model faculty member(s) of a department/subject within university.
2. Institutional strategy: Some institutions, particularly, the new universities were working with institutional digital initiatives to achieve broader aims.60

Similarly, in most of the universities, commonly practiced steps to develop and implement an e-Learning project include: Needs analysis; Instructional design; Development; Delivery; Evaluation; Co-ordination and project management. The roles in these projects often include: Project Manager; System Instructional Designer; Product Instructional Designer; Learning Administrator; Tutors and Writers (Gray et al.)41. However, the planning phase is considered critical in e-Learning
projects where all the university constituents come together and discuss the technologies, instructional requirements, contents required, user needs and many other factors before launching an eProject for computer-based learning, blended learning or virtual learning environments.

Furthermore, in the past couple of years, most important technological innovation in higher education has been the enhancement of academic courses with Web-based applications. The most well-known repository of links to academic Web sites is World Lecture Hall is a good example of the type (Ward). However, teachers still face the problems of finding the educational technologies, which match the needs of 21st-century learners who do not require a high level of technical proficiency. Thus, the trend is to incorporate group collaboration in their pedagogy and thus promote a constructivist approach to teaching and learning while simultaneously adjusting the curriculum with learner requirements (Radosevich and Kahn).

4.2.4 Challenges

Robert E. Wood, found that, on the face of it, many e-Learning initiatives in the advanced world, reflect that the creative use of Web in education is unlimited, however, many researchers report that these new systems are just delivering the traditional print syllabus via the Internet. Similarly, Lewis and Goodison report that in most institutions, the pedagogic use of ICT has rarely went beyond the posting and retrieval of routine course information on web pages. They also disclose that in most of the cases, users are not involved in the development process and many of the academics perceive that ICT-applications will ultimately eliminate the need for teachers.

In the developed countries, HEIs are competing at the global level therefore; pressure for becoming digitally more sophisticated is consistent. For example, in the context of western higher education, appropriate strategies for the development and
use of ICTs are instantly needed to stand the competition of emerging knowledge societies (Sahay)\(^9\). Another researcher notes that given the technology driven nature of the present information-society, lack of technology integration among teachers in American classrooms is a major concern in education today. Davis, asserts that in the background of recent global changes, the academics interviewed from USA, Europe and Australia complain about the rapidly decreasing resources and government funding of universities thereby pushing the HEIs to depend more on self-generated income sources.\(^25\)

4.2.5 Opportunities

Though the availability of advanced resources are the distinct opportunities available to the HEIs in advanced countries, however, the real opportunities are the principles and critical success factors that are being capitalized upon by the developers and users of e-Learning initiatives. For example, in a study of six American universities, it was discovered that successful development and use of eProjects was mounted on:

1. Central role of Top-Management (deans and chairs) in the provision of a sustainable technological infrastructure (Top-Management-Support).
2. Faculty Role Models: In every university, there were a number of faculty members who had knowledge in the design, implementation, and use of e-Learning tools in their classes thereby playing as campus-wide models of technology-integration. These „liaisons“ encourage and motivate their fellows in using technology (Technology Role-Models).
3. All the institutes have established an effective system for continuous technical-support to the teachers, students and administrators (Sustainable Technology Support).
4. Some of the universities are getting grants from private foundations or NGOs to establish special programs, and institutional reforms for technology integration (External Funding).
5. States are legislating and creating standards to guide in the design of computing
curricula, course activities, and assessment criteria (State-Legislation and Standards).

6. The universities are externally connected with a wide range of communities and reaching the technologically underprivileged classes (Linkages with External Communities). 60

Likewise, in UK, David Lewis and Ruth Goodison have recorded somewhat similar factors of success in e-Learning initiatives:

1. The appointment of key faculty members to act as champions of the initiative.
2. User-Perceptions are significant and can pose barriers for new system.
3. The establishment of a robust technical unit, which is well-equipped in supporting the changing needs of user-community.
4. Middle-Management can either be facilitators or barriers for e-Learning project.
5. User-Participation in the development process.
6. Teacher-training to integrate technology into their core activities. 60

In Australia, Lynch et al., regroup these factors into individual domain and organizational domain where individual domain refers to the individual demographic and academic characteristics of the individuals and organizational domain includes the institutional attributes. The participants identified teachers' motivation towards ICTs and their capabilities in their use as the significant factors within Individual domain. While in organizational domain organizational support and symbolic support was placed as top determinants of the progress in e-Learning efforts for enhancing the teaching, learning and administrative capabilities in HEIs. 62
4.3 E-Learning in Developing Countries

4.3.1 Introduction

There is a wide consensus on the potential of ICTs to promote economic growth, fight poverty, and integrate the developing countries into the global economy (Macleod)\textsuperscript{63}. It is also perceived that e-Learning can provide much better education for people in developing countries (Heinze)\textsuperscript{45}. Similarly, this is well understood by under-developed countries. Also asserts that in the context of knowledge-society, higher education can play a crucial role in reshaping and restructuring the social, economic and political institutions of a country.

The emergence of digital telecommunications, expansion of the internet, and global economy in 1990’s, created an impetus for a wider variety of ICT initiatives for developing countries to adopt national ICT policy models. The researchers argue that the greatest problem for underdeveloped countries is the sense of isolation from rest of the world while new communications technologies can reduce the isolation and open access to knowledge in ways unimaginable not long ago (Tinio)\textsuperscript{102}. Furthermore, the development of e-Learning has a key role to play in effectively reducing the impacts of the digital divide particularly in the context of developing nations. Advocate that one of the issues for developing world is their disempowerment however, ICTs has the potential to remove the barriers to the global knowledge thereby empowering the developing states.

However, the reality of the Digital Divide means that the integration of ICTs in various types of education poses the most challenging undertaking for developing countries and failure to meet the challenge would further widen the knowledge gaps and economic and social inequalities (Tinio)\textsuperscript{102}. The developing countries are facing problems like: language barriers, absence of prerequisites, and technology hurdles (Heinze)\textsuperscript{45}. For example, the African universities, which should lead in ICT revolution, are themselves ill-prepared with a poorly developed and inequitably distributed infrastructure for the African universities (Sife et al., 2007).\textsuperscript{96}
4.3.2 Approaches

The focus on e-Learning at University of Botswana is a blended approach to teaching and learning that integrates various modes, methods, and media. India is adopting a comprehensive approach (enabling and sectoral) to cover all the short-term and long-term growth objectives. In India sectoral approach has been combined with the diffusion or enabler approach to maximize benefits of economic growth in the short term. Malaysia’s National Philosophy of Education also calls for developing the potential of individuals in a holistic and integrated manner, which means to produce individuals who are intellectually, spiritually, emotionally, and physically balanced and harmonious (Mathur).68

Will ICT use be the silver bullet for the developing countries to shun their educational problems? The researchers answer this question by saying that it is not the technology but how it used by the users (Tinio)102. In a comparative study of the ICT-curriculum in USA and India, Jonathan Ezer32 found that the Indian curriculum is more instrumental, focusing more directly on the current global economy, and the immediate usefulness of its graduates. This indicates that American and Indian curriculum designers perceive IT somewhat differently, and this may have significant implications for the way technology is developed in these two countries. Crichton and Kopp have found that the technology-integration model in HEIs of China is mostly based on American theories; however, there is need to address other contexts that demand greater ingenuity in the implementation of technology for student learning.22

4.3.3 Development and Use-Practices

In a survey of two middle-eastern universities (Jordan University of Science and Technology (JUST) in Jordan and Zayed University (ZU) in United Arab Emirates (UAE)), it was found that adoption of technology has (a) improved the motivation and confidence level of students, (b) improved their communication and technical
skills, (c) encouraged students to collaborate using ICT tools, and (d) allowed students to be more independent. So far most of the universities in developing countries possess basic ICT infrastructure such as Local Area Network (LAN), internet, computers, video, audio, CDs and DVDs, and mobile technology that form the basis for e-Learning initiatives (Sife et al.96; Nawaz,76).

So far HEIs in developing countries have mostly kept to their traditional functions (Sanyal, 2001) but it is radically changing now. For example, Malaysia's Multimedia Super Corridor (MSC), is a high-tech effort to attract national and international investors with spillover effects on rest of the Malaysian economy89. The Indian ICT applications have so developed that Indians hope in near future, India will rank in the first world (Krishna) and Global IT superpower (Mathur). Thus, ICTs are changing the organization and delivery of higher education; however, ICTs have not permeated to a great extent in many HEIs in most developing countries due to many socio-economic and technological problems . At the same time, Malaysia has her long-term vision, -Vision 2020 which calls for the whole nation’s preparation to face the challenges in the global economy of the 21st century.68

4.3.4 Challenges

India has one of the largest and most developed information technology industries in the world, which has created a small group of multimillionaires and a middle class of network and software engineers, computer programmers, and design specialists, however, the benefits have not reached the masses who live in desperate conditions (Macleod)62. Furthermore, no doubt that India has produced striking growth rates and excellent export earnings but expecting the same results from rest of the economy is unrealistic. The developing countries are facing a number of challenges to implement the e-Learning systems including: lack of systemic approach to ICT implementation, awareness and attitude towards ICTs, administrative support, technical support, transforming higher education, and self development (Sife et al.).96
Cultural and social values in developing countries create big hurdle in the technology integration. For example, decisions made by the teacher about the use of ICTs is influenced by multiple factors including: demographics (like age, educational background); accessibility to hardware; experience in the use of e-Learning tools, perceptions about usefulness, ease of use, creativity in the faculty and the students, training of the faculty, number of years of existence of the institute etc (Nawaz and Kundi).  

4.3.5 Opportunities

ICTs offer unprecedented opportunities to the developing countries to enhance educational systems, improve policy formulation and execution, and increase opportunities for the masses There is an ever-increasing demand for higher education in developing countries with a growing population of students, which is only solvable through virtual education (Loing). Furthermore, the developing countries can no longer base their development on their comparative labor advantage because now what counts is the knowledge-economy. Similarly, the brain drain from these countries is the result of non-recognition of the importance of knowledge and knowledge workers resulting into the widening divides in the least developed nations. Thus, the universities in developing countries have to adopt e-Learning technologies to improve teaching and learning processes (Nawaz).

At the same time, teachers and learners no longer have to rely solely on printed books and other physical media in libraries rather Internet and WWW offer a wealth of learning materials on any subject and in a variety of media that is accessible from anywhere at anytime and by anybody. e-Learning also has the potential to shift power bases for developing countries, for example, the Internet provides communication system for the geographically dispersed people thereby empowering the marginalized groups (Macleod). The importance of higher education to gain prosperity and to develop human resources is well-understood by under-developed
countries because they recognize that appropriate use of ICTs can enhance many aspects of life including health, education and economic growth.

The developments in creating e-Learning environment are squarely dependent on the relentless and constant support of the governments in developing countries. Malaysian government provides attractive taxation incentives for world-class technology companies to participate in MSC initiative. In India, the major impetus to the ICT industry has been the boost provided by the government itself, including incentives for the software and Internet sector. The emergence of a strong Indian IT industry happened due to the concerted efforts on the part of Indian Government (Mathur). 68

Multilateral organizations and international aid agencies also offer opportunities for e-Learning initiatives in the developing world (Tinio).102. International Cooperation is important for many reasons for example:

1. Making funds available is a big issues for most of the developing countries.
2. To avoid costly problems of developing and applying technologies.
3. Many public sector projects fail due to bureaucratic lethargy, limited knowledge and skills or corruption, international partnerships provide better project management and evaluation of the eProjects.

4.4 E-Learning in India

4.4.1 Introduction

India officially the Republic of India (Bhārat Ganarājya), is a country in South Asia. It is the seventh-largest country by area, the second-most populous country with over 1.2 billion people, and the most populous democracy in the world. Bounded by the Indian Ocean on the south, the Arabian Sea on the south-west, and the Bay of Bengal on the south-east, it shares land borders with Pakistan to the west; China, Nepal, and Bhutan to the north-east; and Burma and Bangladesh to the east. In the Indian Ocean, India is in the vicinity of Sri Lanka and the Maldives; in addition, India's Andaman and
Nicobar Islands share a maritime border with Thailand and Indonesia.

As a part of the tenth Five year Plan (2002–2007), the central government of India outlined an expenditure of 65.6% of its total education budget of ₹438 billion (US$7.1 billion) i.e. ₹288 billion (US$4.7 billion) on elementary education; 9.9% i.e. ₹43.25 billion (US$700 million) on secondary education; 2.9% i.e. ₹12.5 billion (US$200 million) on adult education; 9.5% i.e. ₹41.765 billion (US$680 million) on higher education; 10.7% i.e. ₹47 billion (US$760 million) on technical education; and the remaining 1.4% i.e. ₹6.235 billion (US$100 million) on miscellaneous education schemes.115

Similarly, the Vision of India IT Policy is—to harness the potential of Information Technology as a key contributor to development of India. The Mission is to Rapidly develop the infrastructure in synchrony with the creation of excellently trained individuals and teams. And the Goals of India IT Policy are to Make the Government a facilitator and an enabler to provide maximum opportunities to the private sector to lead the thrust in development of IT in India. Among all the development sectors education has remained the most focused sector to improve the efficiency, accessibility and quality of the learning process in the developing countries and India. The new economy is digital and based on knowledge workers and knowledge products while, India’s export structure is dominated by low-technology with a very low world market share of technology-intensive exports.

4.4.2 Approaches

India has based its ICT policies on the universal roles of the new technologies, which are broadly characterized into:

1. ICTs as a Production Sector: It refers to the strengthening of ICT-related industries such as computer hardware, software, telecommunications and ICT enabled services.

2. ICTs as Enabler: It is the application of ICTs in education, health, government,
business and other sectors of the economy for socio-economic development.

The government of India is departing from — a static, supply-based system to a demand-driven system in which — revision and updating of curricula shall be made a continuing activity to keep

In the existing Indian ICT-Policy, it is noted that — a major human resource issue in India is quality education and training, nurturing, and retention of technically skilled manpower. This problem is more severe in IT where technology changes are rapid and there is a large loss of critical trained manpower due to emigration. Similarly, HEC aims to ensure that a comprehensive ICTs strategy is implemented to develop a knowledge-society in India. A host of programs have been introduced to establish a world-class digital infrastructure to provide high-speed internet connectivity to universities across the country, which generates a platform to deliver a range of ICT-enabled educational services.

The development of new ICT policy (called ICT Policy 2.0) is on its way. Government is taking all out steps to make the new policy ideal for the government and acceptable by all the stakeholders in the country. For example, for the last couple of months, government has been asking citizens to submit their opinion and proposals by e-mail to draft the country’s new ICT Policy. Unfortunately, the entire process was going nowhere.

4.5 Paradigm-Shifts in E-Learning

4.5.1 Agents of Paradigm-Shifts

The world has changed with the introduction of computer into human culture. Particularly, the birth of Personal Computer – PC laid a cornerstone for the solo flight of all individuals, organizations and nations into a new world of so far unimaginable digital gadgets. But the digital revolution just haunted the whole human race with the creation of Internet and WWW. Internet is connectivity of the entire
world computers into a single network where users can navigate across the computers and databases hooked on the network. The science of connectivity is progressing and increasingly making the whole world a global-village. Globalization is the creation of global economy and society with common goals and interests therefore every country must prepare to become a member of global village (Nawaz). 77

Given that the entire world can talk to each other at anytime, from anywhere, and with very inexpensive tools and equipments, the concepts of globalization and global economy have got popularity among the world citizens, multinationals and governments. However, –if you look at the opportunities and the threats which exist in the context of globalization, information technology can become a tool of either decreasing the inequalities that already exist in the world or increasing it. Thus, there are issues to be handled by the nations, when joining the global economy and community. These issues are bring a change in the way people used to live, organizations used to do their business and governments used to administer and serve the masses (Tran, T et.al). 103

a. Globalization

Both developed and developing countries are facing the challenge of preparing their society and governments to face globalization, ICTs, and information society and digital economies. The e-ASEAN Task Force and the UNDP Asia Pacific Development Information Program (UNDPAPDIP) believe that with ICTs, countries can face the challenge of the information age. Furthermore, the new global economy has far reaching impacts on the nature and purpose of HEIs (Tinio)102. The implications of globalization for higher education are multiple and diverse. Globalization is at the centre of debate by education policymakers, scholars, professionals and practitioners worldwide. For example, governments are no more the only source of higher education and the academic community is has no more
Globalization and recent developments in the international delivery of higher education have generated a number of new terms including borderless, transnational, transformer and cross border education. Borderless education refers to the blurring of conceptual, disciplinary and geographic borders traditionally inherent to higher education (UNESCO)\textsuperscript{109}. In a general context of globalization, shrinking time and space in our societies, instant communication all over the planet with a fast increasing number (60 million added during the last 12 months) of Internet users now reaching the billion, the universities of all countries are confronted with huge challenges, both external and internal (Loing).\textsuperscript{61}

The implications of globalization for higher education for education policymakers, scholars, professionals and practitioners worldwide are (UNESCO):

1. The emergence of new education providers such as multi-national, corporate universities, and media companies;
2. New forms of education-delivery including distance, virtual and new face-to-face;
3. Greater diversification of qualifications and certificates;
4. Increasing mobility of students, programs, providers and projects across national borders;
5. More emphasis on lifelong learning; and
6. The increasing amount of private investment in higher education.\textsuperscript{109}
b. Digital Revolution

The very phenomenon of globalization is a result of ICT revolution. As exhibited in the literature review and the initial pages of this chapter, ICTs have revolutionized all types of organizations particularly, the education systems around the world. Education systems began changing with the advancements in ICTs for education. e-Learning evolved along with the progress in the digital gadgets for e-Pedagogy, e-Learning and eEducation. The knowledge is becoming a central economic driving force, with the shift from the concept of information society to that of knowledge societies demanding the world-citizens to reevaluate the educational processes and the role of teachers and the nature of their training in the light of emerging ICTs (Loing) 61.

Educators and students don't have to depend entirely on the traditional data sources rather endless channels are now available through Internet wherefrom learners can access mentors, experts, researchers, professionals, business leaders, and peers across the (Tinio)102. Since education requires inputs for the fast changing internal/global business environment, it becomes imperative for the faculty to use digital tools like business databases, statistical tools, library databases, internet, office tools, websites, online business games etc. to enhance learning outcomes (Mehra and Mital). 71

The latest type of computer program is the social software which helps creating effective distributed research communities and used to teach in different subjects. Social software supports constructivist pedagogy where students are empowered to self control their learning (Mondal A,Jayanta)72. Social software supports activities in a digital social network, which is a social network created through computer-mediated communication. The research on social software is investigating the relations between social entities in digital social networks and their interaction (Klamma et al.).53

The research suggests that the technology-integration should not be handled in purely
technical perspective rather situated in the context of social, cultural, political and economic factors (Macleod). Due to the growing use of new ICTs, the existing method of knowledge processing needs to be revised to take into account the shifting market situation and the increasing global competitiveness higher education (Baumeister). The researchers point out that the technology-paradigm shifts have changed not only the way of computing but also how the technology itself is perceived by users and society (Ezziane).

4.5.2 Dimensions of Paradigm Shifts in HEIs

The change in teaching, learning and education management is not just technical, it has rather transformed the whole scenario of education in HEIs. The tenets of globalization in the background of global village are not neutral rather contain ideological underpinnings which influence the technology-users not only the way they work rather their perception of pedagogy, learning and education delivery has gone through metamorphosis (Sasseville; Loing). Also summarize these paradigm shifts from one point to another as:

1. from instruction to construction and discovery,
2. from teacher-centered to learner-centered education,
3. from the teacher as transmitter to the teacher as facilitator.
4. from absorbing material to learning how to navigate and how to learn,
5. from one-size-fits-all to customized learning,
6. from linear to hypermedia learning,
7. from learning as torture to learning as fun
8. from school to lifelong learning.

In the present knowledge-society where there is information overload the profession of the teachers is shifting from transferring knowledge to guiding learning processes (Jager and Lokman).
a. From Technocracy to Democracy (Role of HEIs)

The higher education is moving away from an elite system to a mass education system that is evident from the increasing number of students around the world (UQA)\(^{105}\). Modern higher education while riding on the horse of ICTs, can perform new and broader functions in the favor of society at national and international level, for example: identify the preconditions for development; provide Education for All produce graduates to provide leadership roles in education as researchers, teachers, consultants and managers for public and private sectors; enhancing educational management, and finally, HEIs can go beyond their traditional models of work to new formats of learning, teaching and research (Sanyal)\(^{89}\). Thus, e-Learning and digital literacy have the potential to shift power bases for developing countries from elites to masses (Macleod)\(^{62}\).

i. Pioneering Role of HEIs

Higher education is at the top of the education pyramid and determines to a large extent the state of the education system of the country, especially its quality. As such it has a responsibility towards the whole education system as it has towards the whole of society (Sanyal)\(^{89}\). In the context of globalization and knowledge economies, higher education in its knowledge producing and disseminating function, is recognized as an essential driving force for national development in both developed and developing countries (UNESCO)\(^{107}\). Universities are now expected to contribute to society by widening access to higher education, continuing professional development, applied research, contributing to local economic impact, and improving social inclusion (Beebe)\(^{13}\). The higher academic institutions of a country are pioneers in adopting and using ICTs (Roknuzzaman)\(^{85}\).
ii. Education For All (EFA)

One of the biggest expectations from e-Learning is about its ability to offer equal education for everyone. For example, the e-Courses have the power to reach any corner of the planet and deliver same high-quality education everywhere (Heinze)\textsuperscript{45}. Thus, technological, economic, and social changes of the past decades have made education for all (EFA) more significant than ever before. The HEIs are making efforts to bring educational opportunities to all and provide learners with knowledge and skills for evolving workplaces and sophisticated living environments, and to prepare citizens for lifelong learning (Haddad and Jurich).\textsuperscript{42}

In a conference by UNESCO on Education for All, broader objectives with principal requirements and strategies have been identified by the participants from member countries, which include:

1. Create such educational contents and process which fit in your own social and cultural requirements based on modern tools and techniques to provide autonomy for each individual in a global society.
2. Develop such formal and informal education services, which are accessible to all.
3. Harness the ICTs for all in order to broaden the reach of education, particularly for the excluded and underprivileged groups.
4. Replace costly and culturally alien education structures with less expensive systems, which are more flexible, diversified and globally affordable (Sanyal.).\textsuperscript{89}

iii. Life-Long Learning (LLL)

e-Learning defined as the appropriate organization of ICTs for advancing student-oriented, active, open, collaborative, and life-long teaching-learning processes." The difference between traditional and current education is that formerly people were used to Learn at a given age while current education is for Lifelong learning\textsuperscript{103}. The European Commission defines lifelong learning as any learning activity undertaken throughout life, with the aim of improving knowledge,
skills and competences within a personal, civic, social and/or employment-related perspective (Dhainje). 

Bernard Loing notes that a critical inner challenges to e-Learning is the diversity of new generation of students (net generes), HEIs and programs demanding consistent upgrading of knowledge contents and a need for lifelong learning. ICTs can help resolve all these issues. As academics and their associated systems become increasingly Web-based, the Internet is becoming a universal platform for lifelong public service. 

iv. Bridging the Digital Divide (DOI)

The issue of digital-divide is commonplace and generated a plethora of public addresses, reports, policies, and plans attesting the importance of the concept. Though computers are becoming more prevalent, the rapidly increasing digital divide continues to separate those who have access from those who do not. Today's is a world of many divides, with Digital-Divide on the top, which is generating and worsening other economic and social divides. The term digital-divide’ is used to describe the gap in technology resources, information, and education. It refers to the divergence between individuals, communities, cultures and nations at socio-economic levels in terms of access to ICTs and use of internet (Blázquez). Access and digital divide have always been an issue for e-Learning in many countries.

A technologically deterministic perspective of the digital divide by most of the governments in developing countries proposes solutions based on access to hardware only, which is unfortunately further widening the digital divide within countries therefore, it is required to address the digital divide from social and community perspective by placing greater emphasis on broader development objectives (Macleod). Decontextualized attitude of authorities is one of the reasons for the brain drain from the developing states, thereby further widening the gaps.
b. From Computerization to Personalization

When ICTs emerged, their primary use was the automation of individual and organizational jobs therefore no consideration of the user personalized relation with technology or customized use of it. It was not simply possible because technology did not allow that so whatever technology could do was great. So there was computerization or digitization of the individuals and organizations and not otherwise. However, as the computer technologies evolved into first information technologies and then information and computer technologies (ICTs), the scenario has begun to change (Stockley)\(^9\)\(^8\). Now the ICTs are more diverse, powerful, mobile and integrative to help users in personalizing and adapting the ICTs to their individual requirements and not otherwise.

i. Computerization of Individuals and Organizations

Transaction processing systems (TPS) were the first popular programs to automate mechanical, structured and routine matters and decisions. So the view of technology was naturally instrumental and not "substantive" in the sense that computerization was considered as a neutral process with no implications for humans and therefore society at large (Young)\(^1\)\(^1\)\(^6\). This was true because the technologies were primitive in terms of providing such work environments which could inspire broader level applications. Thus, before the emergence of new social technologies, the ICTs were not capable to be used for broader and instant social interactions therefore; most of the applications remained instrumental and not liberal and substantive (Cagiltay et al.).\(^2\)\(^0\)

The significance of personalization and adaptation technologies is evident from the fact that every user has different demographics, perceptions, theories and learning styles therefore cannot be happy with a single model of technology when it comes to its use (UNESCO)\(^1\)\(^0\)\(^9\). New technologies offer opportunities at the end user
computing levels to customize the environments according to very fine levels of detail. For example, moving files from one memory location to another as the user wishes is a traditional personalization tool, today a user can adapt technologies to his preferences about the color, theme, background of the desktop, online/offline work environments just a matter of click, receive RSS feeds on blogs, news headlines and other frequently updated sources of information, knowledge and inspiration.

ii. Personalization and Adaptation of ICTs

Personalization and adaptation technologies are that group of ICTs, which are used in the design and development of end-user-computing to make the environment user-centered. Adaptation is the process of modifying the learning environments so that to support the learning processes effectively (Stockley)\(^98\). While personalization technologies range from allowing the user to simply display his name on a Web page, to advanced navigation and customization according to the rich models of user behaviors (Dinevski and Kokol)\(^27\). It is generally recognized that effective and efficient learning need to be individualized, personalized, and adapted to the learner's preferences, competences, and knowledge, as well as to the current context. Adaptive learning systems keep the information about the user in the learner model and thus provide adaptation effects on the digital environment (Klamma et al.).\(^53\)

iii. Personalization Technologies

The theory and dynamics behind personalization is simple and its implementation is almost straightforward however, it requires highly sophisticated technology, for example, portal systems are built from the ground up to provide a personalization framework, which is smart enough to link each user's attributes with the appropriate information and resources for that user (LaCour)\(^58\). Through personalization, the learning organizations can help learners to become more familiar and comfortable with new technology features (Dinevski and Kokol)\(^27\). For instance, the personal uses of ICTs in teachers-training will construct teaching-models.
The educators express that learning has to be offered in a user-centered model based on the user learning-styles (LaCour)\textsuperscript{58}. However, for this purpose, the current teaching force needs to be trained and constantly supported by specialists for technology integration (Zhao and Bryant)\textsuperscript{118}. Training in technology-integration will enable teachers to teach learners in not only how to use a particular digital gadget rather how can they solve their educational problems with ICTs (Chan and Lee)\textsuperscript{21}. Traditional learning materials are typically too general to cover a very wide range of purposes, so personalization can be the most important added value that e-Learning can offer to adjust to various working conditions and needs of students who have differing interests, objectives, motivations, learning skills and endurance (Klamma et al.).\textsuperscript{53}

iv. Adaptation Technologies

Adaptation happens in two ways: adaptation to the user's behavior (changing the system tools for user) and adaptation to the client device (changing the system tools for each other). The first type of adaptation means that the system should know what the user expects. In this case facts about the user are gathered and analyzed so that users can be grouped according to agreed criteria. The second type of adaptation refers to the portability of the platform, and is manifested in the flexibility to move and produce content to different hardware platforms and user devices. For example, the same content might be accessible with a desktop computer and a personal digital assistant (Stockley).\textsuperscript{98}

The focus in adaptation is on how the user manages the changing technology that is constantly changing and requires the user to learn new technical skills in order to work with technology (Stockley)\textsuperscript{98}. The emergence of Web technologies has enhanced the possibility of connecting diverse population of learners (LaCour)\textsuperscript{58}. Furthermore, since technological developments occur very rapidly, students cannot often catch up with them therefore, while designing e-Learning environments, both the old and new technological approaches should be applied simultaneously (Cagiltay et al.).\textsuperscript{20}
c. From Teacher to Student

i. Student-Centric e-Pedagogy

Teacher-centered and whole-class instruction is no longer the dominant teaching method (Jager and Lokman)\(^49\). As learning shifts from the teacher-centered model to a learner-centered pedagogy, the teacher becomes a facilitator, mentor, and coach from sage on stage to guide on the side, where a teacher's primary task is to prepare the students in how to ask questions and pose problems, formulate hypotheses, locate information and then critically assess the information found in relation to the problems posed (Tinio)\(^102\). For example, new hypermedia applications are offering individualized learner-centered education delivery systems (Spallek) emphasizing the learning with technology because it is a quick way of acquiring knowledge.\(^97\)

However, practically, there is also counter evidence to the idea of student-centered pedagogy too, for example, a research shows that e-Pedagogy facilities has hardly affected the actual teaching approaches. They are dominantly teacher centered and little attention is paid to the full exploitation of communication facilities and interaction. The only pre-dominant role of ICTs is in facilitating the information and administrative processes (Valcke)\(^110\). Anyway, ICTs if used correctly, can assist in adopting a more people or learner-centered and dialogical approach to education. These technologies can encourage and support a meaningful two-way, informational communication between teachers and learners (Walsham)\(^111\)

ii. Student-Centered Learning-Environment

The learner-centered approach derives from the theory of constructivism, which argues that knowledge is neither independent of the learner nor a learner passively receives it, rather, it is created through an active process where a learner transforms information, constructs hypothesis, and makes decisions using his mental models or
schemas based on experience of the individual, which also assist learners to ultimately give meaning and organization to individual experiences. The use of ICT in education offers more student-centered settings, which are constructivist in nature due to their provision and support for resource-based, student centered settings and by enabling learning to be related to context and to practice (Oliver). As the Web has afforded new ways to network people dispersed across a broad, educators have learned a great deal about the ability of the Web to nurture, foster, and enable community (Glogoff).

The National Research Council of the U.S. defines learner-centered environments as those that pay careful attention to the knowledge, skills, attitudes, and beliefs that learners bring with them to the classroom. Moves from content-centered curricula to competency-based curricula are associated with moves away from teacher-centered forms of delivery to student-centered forms. Through technology-facilitated approaches, contemporary learning settings now encourage students to take responsibility for their own learning. Instructional blogging offers additional opportunities to engage students and extend the virtual classroom. Learner-centered blogging acknowledges the important attributes of learners as individuals and as a group. However, in practice, as Mary K. Allan, found in New Zealand, there are low collaborative activities and the significant preference is still given to the print over other forms of presentation showing that the traditional dynamics of teacher-centered learning contexts are still dominating.

4.6 Discussion on Global Experiences

Across this chapter one central theme that seems stretching throughout the cases of developed and developing states including India, is that e-Learning is on its way to mushroom in every HEI of the world because obviously, there are no limits on getting ICTs from around the world. The miraculous opportunities offered by Internet and Web-Technologies are inexpensive user friendly and do not need technically savvy
users therefore they are transforming the whole world into a global village in the true sense of the word.

There are mixed results about the success and failure of e-Learning projects in different HEIs in the developed and developing countries. Researchers are reporting both positive and negative attitudes of the users along with a variety of reasons for their attitudes. However, there are common threads across all the cases. For example, instrumental use is extensive across the globe with more substantive moves in the developed world and excessive instrumental applications in the developing countries. Similarly, there are differences in both theories and practices between the advanced and less advanced regions. For instance, contextual differences include more rigid bureaucracies in many developing countries, coupled with problems such as foreign exchange shortages and the erratic supply of infrastructure services such as electricity (Ward, T., Monaghan et al.).

Furthermore, despite the efforts over the last decade, there is lack of knowledge about how to make e-Learning accessible. The reasons to this are that the existing research has more investigated about why e-Learning should be made accessible rather than exploring about how the users are interpreting and executing e-Learning to create an accessible environment. At the same time, there is lack of any comprehensive conception of what the best practice is and what factors affect that practice within higher education. It means that most of the research is focused on the instrumental uses of e-Learning rather than substantive applications (Nawaz and Kundi).

Logically, there are both common and unique issues being faced by the developed and developing world. Common issues mostly relate to the user characteristics, training, satisfaction, motivation and computer literacy. While uniqueness of the same issues in developing countries is that they are more intense, widespread and intricate. Likewise, developing states have to face the unique barriers relating to the political, economic and technical conditions of their countries.
4.6.1 Common Concerns

Although the ICT resources are different in developed and developing countries, a number of common themes can be identified which concern all the countries. For example, in the background of the development and use of e-Learning environments, the same type of users (teachers, students and administrators), similar objectives and therefore most of their problems are also the same with, of course, differences in number and intensity of the issues. For example, user-demographics matter in the success of any e-Learning project no matter whether the project is initiated in a developed or developing environment. Furthermore, user-participation, user-training, user-satisfaction, the problems of technical support and support staff and creation of information-culture among the users are also the common challenges faced by the HEIs around the world.

The research in both the developed and developing states give evidence about the common problems of e-Learning in HEIs. For example, it is reported over and over that teachers believe that traditional face-to-face learning is the most powerful and graceful method of delivering knowledge contents. At the same time, research also reports that teachers feel intimidated with the intervention of computers into their privacy, which has existed for centuries. An analysis of the world e-Learning experiences in HEIs clearly shows that teachers overall attitude is almost similar around the world, meaning that there is still a big gap between the theory and practice of instructors. For example many of the current VLEs provide no more than a drill-and-practice approach to learning. The technologies are simply being used to replicate the traditional chalk and talk ways of teaching and learning (Drinkwater et al.).

4.6.2 Unique Issues

ICTs are being integrated into the teaching, learning and administrative practices of HEIs around the world. Both instrumental and substantive uses are underway both
in the planning and implementation of e-Learning projects in both the developed and developing worlds. Instrumental use is more popular and broadly applied in the developing countries while developed states have crossed the initial instrumental uses of ICTs and now working on the integrative and liberal applications of e-Learning tools. Thus, the uniqueness of the problems for developed and developing states is primarily in terms of instrumental and substantive uses of ICTs in HEIs.

In the background of developing countries, as discussed in the literature review, the problems exist both at the development and use levels. The developing states are using borrowed models of e-Learning from the developed world, which are proving ineffective due to the contextual differences. The users’ demographics and work environments are different in different countries therefore; a framework which is successful in one country cannot give the same results in another country if the other is different in terms of people characteristics and the broader context within which the e-Learning will work. Asian Development Bank notes that while South Asia is the most illiterate region in the world.

4.6.3 Digital Opportunity Initiatives (DOI)

DOI are the efforts to bridge the digital divide. In the Asian context, despite the odds, the statistics are very encouraging showing that developing world is on its way to using ICTs with increasing trends as a sign of better future. Figure 4.1 gives information on the volume of users in different part of the world. Though, Latin American and Africa are preceding but Asia is proceeding Europe and North America. It is obvious, that Internet is proving the biggest opportunity for the developing countries to eliminate their isolation and connect to world knowledge resources with very inexpensive and most convenient methods and manners.
A researcher notes that the enterprise and flexibility are the key values needed for universities to succeed in the rapidly changing culture of higher education system (UQA)\textsuperscript{105}, where technology does not drive education rather, educational goals and needs, and careful economics drive the use of technology (Tinio)\textsuperscript{102}. In both the developing and developed world most of the teachers believe that learning should be designed and delivered in tune with the learner and environmental requirements (LaCour)\textsuperscript{58}.

The researchers agree on the study that the only solution model for developing and using successful e-Learning environments in the HEIs of the world is the design and implementation of digital initiatives according to the user and institutional context. The user differences because of the demographics and their knowledge and skills have been documented as the main factors in determining the role of ICTs in HEIs. To meet these objectives, the most undeniable opportunity emerging from the Internet and web technologies are the Web 2.0, FOSS movement and the possibility of international, national and institutional partnerships. New social software helps creating partnerships between communities inside and outside the HEIs.