e-LEARNING
practices

VOLUME: II

Editor: **Prof. Dr. Ugur DEMIRAY**

**CASES ON CHALLENGES FACING E-LEARNING
AND NATIONAL DEVELOPMENT:
Institutional Studies and Practices**

VOLUME: I

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As an active academic researcher, his research articles are published in the National and International referred Journals in the area of Open and Distance Education. He is one of the reviewers for Indian Journal of Open Learning (IJOL) and Kakatiya Journal of Distance Education (KJDE). He contributed chapters to books and Associate Editor to a book on "*Distance Education in Andhra Pradesh: Policies, Practices, Perspectives*". He participated in National and International Seminars and attended many Workshops. He also organised and coordinated more than 50 Orientation Programmes for the Academic Counselors and Functionaries for ensuring quality support services to the learners. He has been actively involved in the activities of professional organisations in the field of Distance Education and Public Administration as a Life Member in Indian Distance Education Association (IDEA) and New Public Administration Society of India (NEPASI) and as a Secretary of Indian Distance Education Association (2006-07). Academically he had many distinctions like University First Rank in M. A. Public Administration, Awarded Junior Research Fellowship and Best Research Paper Award.

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eLEARNING IN ALGERIA
Experiences On E-Learning in
Algerian Universities
Mahieddine DJOUDI
XLIM-SIC Lab. & IRMA Research Group,
University of Poitiers, FRANCE**...…......….............….......……...………1-31**

> Learning requirements are increasing in Algeria because of
> population explosion and the policy of democratization of
> education. An estimated several thousand teachers in the deficit
> for the coming years in Algerian universities. If you look at
> training trainers who is supposed to take over shows that the
> number of positions available each year is still below that
> required to meet the demands of coaching in Algerian
> universities. Despite almost annual opening of new universities,
> overload students remains a problem for managers of these
> establishments. Add to this the insufficiency of teachers in some
> specialties where demand is high and spread over the vast

territory of Algeria. E-learning presents an alternative then the more it brings benefits in terms of educational and economic consequences. Indeed with the e-learning problems of housing, food and transportation for students will no longer arise. Secondly Algeria can not afford to remain on the margins of technological innovations.

Chapter-2

The chapter presents the development of "hhh" technology in eLearning in Armenia. All People Internet University (called "hhh") education technology is a patented software tool that allows rapid creation of interactive simulations and modelling in Distance and Online Educations systems. The main features of these new capabilities, new issues and challenges in same private universities are presented.

Chapter-3

This chapter is dedicated to the history and present state of e-learning in Belarus - the only European country not participating in the Bologna process. The authors analyze the low efficiency of governmental programs of e-learning in secondary schools and political obstacles to the spread of distance learning and the designing networked learning environment in higher education.

Chapter-4

The goal of this chapter is to present the recent challenges and conditions in Bulgaria for involvement and efficient use of e-learning in different forms, types, modes and levels of education.

The chapter gives an overall picture of the Bulgarian educational system, taking into account the current political priorities and the most significant concrete measures, accelerating the ongoing reform in different sectors of the educational domain. It captures in brief the government requirements for implementation of distance learning in the higher education institutions. Some good practices, applied by non-governmental organizations and private educational companies, are outlined. Two case studies demonstrate the experience of two Bulgarian universities in the field of e-learning which Bulgaria faces in the field of e-learning in the dawn of the millennium, are pointed out.

Chapter-5

This chapter summarizes the current situation of using the e-learning technologies in Egypt. Higher education in Egypt faces many challenges such as high student numbers, financing of education, governance and management of the education system, and quality assurance. In this manner, the National E-learning Center (NELC) was established, Egyptian E-learning University (EELU) established 2008 to provide e-learning nationally, regionally, and internationally.

And this is one of the Information and Communication Technology Project (ICTP) outcomes, to serve as a technical unit within the Supreme Council of Universities to promote and support the development of e-learning in Egypt by improving the development of the e-learning content.

Chapter-6

In this chapter evolvement of the Estonian e-Learning Development Centre (Estonian Information Technology Foundation) will be analyzed during its five years of operation. Attention will be paid to processes that were the drivers behind the formation of the Estonian e-Learning Development Centre and contributed to its sustainability.

Chapter-7

e-Learning has been a strategically significant focus of development in the Finnish education system. In particular, ICT skills and deployment have been emphasized in the National Board of Education's strategies since the beginning of 1990.

Other administrative bodies have also gradually recognized ICT utilization as a significant skills area and in various development strategies and ventures e-learning has been seen as a pivotal

method to promote skill development and innovation. In this chapter, e-learning strategies and their implementation in different educational sectors are described from the perspective of life-long learning. Current Finnish e-learning best practices and development areas are also introduced.

Chapter-8

eLEARNING IN GREECE
Dimirios SIDIROPOULOS
Katerini Technical High School, GREECE
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Maria MAVROMMATI

The following chapter is an effort to describe the development of eLearning in Greece. In the first part we describe the Greek educational system in general. The second part deals with distance education in Greece. Later on we address the issue of development of Information and Communication Technologies and infrastructure in Greece. eLearning Research, Lifelong Learning, Adult Training, Intercultural Education and Future Strategy are also addressed as major parts of the eLearning sector in the Greek educational system.

Chapter-9

eLEARNING IN HUNGARY
Sarolta ZÁRDA, Rector
Dennis Gabor Applied University, HUNGARY
Géza BOGNÁR, Deputy Rector,

The restructuration of Hungarian legislation yielded to restructuring of companies-ownership and to important changes in Hungarian higher education in the early 90 years of the past century. Accordingly the higher education market was liberalized. Due to technological development, eLearning applications entered to the everyday practice of universities since

year 2000. For the time being mainly private-owned universities are using the eLearning technology. This is the way by means of which more services can be offered to students, accordingly it is expected that more candidates will choose universities having eLearning facilities. This chapter discusses development of the elearning in Hungary for the Millennium.

Chapter-10

In this contribution, an overview of Iranian educational system in general and higher learning/education in particular is presented over the last hundreds years. We mainly aim to give a brief account of the country's rapidly expanding ICT-based initiatives in the light of its actual realities, progress and difficulties by looking at the following areas: the social and historical situation in Iran, Educational system, Higher education, Distance education and particularly Virtual Institutions in Iran.

Chapter-11

This chapter reviews the efforts made to integrate ICT in the Iranian educational system and addresses the issues related to e-learning in pre-tertiary and higher education. The development of ICT in Iran began at the beginning of the millennium with a plan called TAKFA. Although the ICT infrastructures have developed considerably in the last decade and the number of internet users increased, the e-readiness of Iran is not at the proper level; Iran rank in e-readiness is 68 (out of 70 countries) with the average score of 3.4 (out of 10). It shows Iran should

Although many initiatives have taken into account to integrate ICT in educational system, such as developing ICT departments, increasing the bandwidth of the universities, developing a scientific network, national network of schools equipping schools to computer centers, etc., there are still some challenges on the way of e-learning in Iran, such as the lack of an official domestic guidelines and standards, an adequate governmental supervision, low bandwidth, high price of connectivity, etc.

For optimum use of ICT capacities for e-learning in Iran, cultural, political, and technical and policy issues should be taken into consideration.

Chapter-12

Empowering distance education's is crucial for Iraq after decades of traditional learning. Iraq needs new models of education facilitated by educational technology. Some of the most promising new educational approaches are being developed through e-learning and virtual schools. This is an exciting, creative and transforming era for students, teachers, administrators, policymakers and parents. It's time for Iraqi higher education entities to keep abreast of this quite revolution.

This Conceptual and roadmap paper, presented at the Iraqi Higher Education conference to be held in Kurdistan/Iraq, on December 2007, tries to promote the Iraqi Higher Education entities, via utilizing distance learning or education eLearning strategy considerations.

Chapter-13

eLEARNING IN ISRAEL
A Case Study of Technology in
Distance Higher Education:
The Open University of Israel
Yoav YAIR

> This chapter describes the transition from traditional, on-campus
> delivery to technology-based higher education in Israel. It
> reviews the higher education arena in the country and offers an
> updated and concentrated summary with special focus on
> distance education as is practiced at the Open University of
> Israel. Various aspects of technology usage and e-learning
> models are described, including collaborative learning, on-line
> video and OCW. The review draws from the vast experience
> gained in over a decade of e-learning experimentation and
> model-development and is based on user-experience surveys and
> faculty interviews.

Chapter-14

eLEARNING IN JORDAN
Challenges Facing e-Learning in the New Millennium
Mosleh AL-ADHAILEH

> Many challenges have taken place in the ever-growing and
> mobile society and today's constant and rapidly changing
> technology and resource. The explosion of web-based
> technologies and internet provides a new trend for educational
> systems to introduce new teaching and learning environments. In
> response to the fast development in Information and
> Communication Technologies (ICT), e-learning was adopted by
> many universities around the globe as a way of improving and
> supporting their teaching-learning activities and making
> education accessible for all society members. Hashemite

Kingdome of Jordan took e-learning initiative in its vision since 1998, and progressed rapidly since that time. Infrastructure has been upgraded for this purpose. Issues related to adopting and supporting e-learning such as training, e-course development for both K-12 education and higher education has been progressed.

This Chapter describes the issues and barriers associated with integrating e-learning into Jordan educational system. We discussed Jordan successful e-learning experience and case studies including infrastructure, ICT integration, attentions, training, readiness and awareness, and challenges facing e-learning in Jordan.

Chapter-15

eLEARNING IN KAZAKHSTAN
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National Center of Informatization KAZAKHSTAN
Yelena ARTYKBAYEVA
National Center of Informatization, KAZAKHSTAN

In the Republic of Kazakhstan held a large-scale informatization of education is held in the following areas: regulatory support, info-communication software, software, content and staffing. E-learning has had wide development at the expense of electronic textbooks which are considered as applied programs of interaction of subjects of educational process.

Electronic textbooks are developed for high school practically in all subjects and on all classes in the Kazakh and Russian languages; their translation into English is planned. In electronic textbooks integration of pedagogical and information-communication technologies are provided. Efficiency of e-training depends also on the level of readiness of teachers, therefore in Kazakhstan training courses are held for teachers on use of electronic textbooks, network technologies, and interactive boards in educational process.

Chapter-16

This chapter documents on the research study conducted in the Kyrgyz Republic. The implementation of learning technologies in developing countries is as much a journey as a destination. Our case study focuses on two specific phases in this journey: planning and implementation. Initial planning and carefully analysis of implementation, with attention to the challenges for teaching staff and students, can mean the difference between success and failure. The adoption of new technologies in a country with a long Soviet legacy, and a characteristic Central Asian culture based on oral tradition, defies indeed economics. The evolution of telecommunications, in general, and ICTs applied to education, in particular, in the Kyrgyz Republic is on the rise as official statistics show. However, it is not technological but economic resources that pose more problems (CAICT, 2005). This is especially the case of more isolated and distant regions like Karakol. From own research, we came to observe some of the differences in terms of resources between a university located in the capital and another located in the far-east of the country.

Chapter-17

The chapter contains brief description of Latvian education system and the findings of a study institutional corporations and

the emphasis in the study is on the implications of increasing use of Information and Telecommunication Technologies (ICTs) for The chapter discusses the bilingual situation presented in Latvia and related problems regarding e-training courses development as well. Because of this, Latvian society must consider their entire policy towards bilingualism in the educational system. Brief information is sent about the current financial model for Latvian education. Then topic on the contribution and the situation of distance education in Latvia follows. Starting with historical facts the chapter cover also current state of e-learning activities in Latvia.

This overview contains the description of e-learning education framework in Latvia including computers and Internet usage in education. Most resent policy measures at national level are discussed and medium term plans 2007-2013 are evaluated. National or International e-learning content suppliers, e-learning Technology Suppliers, e-learning service suppliers are briefly discussed. Then an attempt is made to estimate the Latvian e-learning market size and its characteristics. After all the applications of e-learning in Latvia educational system by study levels is observed. At the end of the chapter an author's forecast for e-learning education as a future of Latvia is represented.

Chapter-18

This chapter is set to trace the development of e-learning in schools and higher educational contexts in Lebanon utilizing information obtained from policy papers, national reports, journal articles, and national statistics. In addition, three case studies are presented as examples of e-learning development in higher education. As the topic of e-learning continues to attract

the attention of practitioners, policymakers and researchers, this chapter attempts to make an incremental contribution to e-learning experiences from a Lebanese context-dependent perspective.

Chapter-19

This chapter contains the general information about Lithuania: country description, overview of economical and financial issues, description of education system in Lithuania, case study. The chapter presents the overview of eLearning in Lithuania and the special attention paid on experience in eLearning field at the department of Construction Economics and Property Management of the Faculty of Civil Engineering of Vilnius Gediminas Technical University (VGTU).

Chapter-20

The chapter is aimed to examine the emergence and growth of e-learning, i.e., the application of information and communication technology (ICT) in formal education (i.e., primary, secondary and vocational education) in Lithuania. The chapter concentrates primarily on ICT policy and practice (incl. content and services, teacher training for ICT, and participation in international R&D projects), research findings and case studies of e-learning in Lithuanian primary, secondary and vocational education system.

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Chapter-21

eLEARNING IN MACEDONIA
Bekim FETAJI
Majlinda FETAJI

The focus of the analyses is elearning in Macedonia focusing on the developed strategy and analyses of the insights gained from a case study of particular distance education application in South East European University, Macedonia. The analyses covers the impact of ICT on University's mission in achieving multicultural and multilingual education within Macedonia and the context of the Balkans, but also in a wider European and global context. A number of issues related to such an impact and specific context of the University, and the developed strategy as well as analyses of its applications as case study. The implemented strategy and solution as well as experiences gained in the process led to a number of important results as outcomes and recommendations for similar initiatives.

Chapter-22

eLEARNING IN MOLDOVA
E-Learning and ICT Development
in Education In The Republic of Moldova
Tudor BRAGARU, State University of Moldova, MOLDOVA

This chapter is devoted to the existing educational system in one of the 15 former Soviet republics: Moldavian SSR, nowadays Republic of Moldova that has gained its independence in 1991. More than 4 years ago a reform of the Moldavian educational

system has started. It was oriented to European values and aimed to the innovational training and teaching methods adoption. A proper ICT integration in the technological teaching process, however, did not take place yet. The implementation of the new forms of the distance learning based on e-Learning is experiencing an evident slowdown. This chapter discusses the penetration and application of ICT in Moldova in whole and in educational institutions, as well as some problems related to education informatization.

Chapter-23

eLEARNING IN MOROCCO
Developments and Issues in Morocco
Rachida AJHOUN, Université Mohamed V-Souissi, MOROCCO

This chapter presents an overview on the strategy and actions undertaken by Morocco to achieve the introduction of the use of ICT in education and training. The case studies discussed shed light on the situation of e-learning in Morocco which is defined as: "the use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services, as well as exchanges and distance collaboration". These studies show both the different approaches adopted by those in charge of the training in order to benefit from numerous advantages of e-learning and other difficulties encountered in its implementation. Following these studies, a synthesis is presented on the reflexion conducted by decision makers and those in charge for training to identify new measures to address the obstacles that hinder the emergence of e-learning culture in Morocco.

Chapter-24

eLEARNING IN NORWAY
Torstein REKKEDAL

Norway was the first country in the world to introduce specific legislation on distance education when the *Act on correspondence schools* was passed in 1948. As one of the richest, according to GPD per capita and most developed countries in the world, it is no surprise that Norway has a highly developed technological infrastructure for distance education, online learning and e-learning. The government has over the last 15 years taken a number of initiatives to develop ICT competence among teachers and students on all educational levels. By establishing the *Norwegian Opening Universities*, a national body for distance education in higher education the government has clearly defined a strategy for development of online higher education that supports the development of dual-mode solutions rather than establishing a single-mode distance education university. Norway's leading position concerning e-learning was demonstrated in the *Megatrend-project*, that in 2007 found four Norwegian institutions among the 26 identified European 'mega-providers of e-learning.

Chapter-25

E-Learning has introduced new approaches of instructional delivery where the roles of teacher and student have significantly changed. The case in Oman shows that the introduction of these approaches needs to keep pace with the demands of the times, but only the actual needs arising from social and educational context of Oman. Attention should be given to the socio-cultural understanding of teacher-student relationship in open technology-enriched learning contexts. Omani educational institutions continue to review their policies and provision of e-Learning, considering technological alternatives for resolving some of the pressing issues posed by the actual needs. There is a need for coordination at the national level to create strategies and

mechanisms and controls that ensure the quality of e-Learning institutions and outputs

Chapter-26

eLEARNING IN PALESTINE
Mohammad A. MIKKI, Islamic University of Gaza, PALESTINE
Nabil J. J. JONDI, Hebron University, PALESTINE...**..…..…..…… 627-652**

No doubt that globalization and rapid changes occurring in the world have thrown its impact on education and human endeavors. Both training and education are considered as a lifelong experience for workforce cross the world. Palestine, in fact, is part of the sweeping globalization and transformation, regardless of its difficult political context and might be because of it. Palestine opened itself up to many international interventions and programs. Hence e-learning is needed and the documentation on e-learning is also needed. There is a very big need for this chapter about the Palestinian environment as it is achieving two goals. The first goal is to provide information data that sheds light on what is going on in Palestine regarding e-learning. This goal will clarify how information technology, e-learning programs, electronic libraries, twining programs, international courses, worldwide research initiatives, electronic homepages, and other tools of communications, are developed in Palestinian schools and universities. The second goal is to explore challenges and obstacles faced and institutions' strategies of coping with these challenges as well as the national policy to develop learning at this particular context.

Chapter-27

eLEARNING IN POLAND
Anna RYBAK, University of Bialystokx, POLAND**..…......….…… 653-672**

The chapter contains information about Poland, Polish educational system, using ICT in education and state of development eLearning for Poland distance education system in the Millennium.

Chapter-28

This chapter focuses on the use of ICT in Romanian education system, presenting the relevant programmes, projects and initiatives, and using research data from several reports released in the last years. Being aware that innovation related to the use of ICT in the education system is still at the beginning, we tried to bring forward the landmarks of the early stages this transformation, convinced that time will settle practices and theories which would put strength on the development of students' key-competencies. In our opinion, the new technologies are an invitation and an opportunity for teachers and for education decision-makers to think deeper about education practice, to re-invent and to discover the real Pedagogy. First steps are already done in Romania, but many more are still to be developed, aligned with international experiences and initiatives, and adapted to the local context.

Chapter-29

In the first decade of the 21st century, worldwide, the tremendous increase in the amount of available information and the spreading of the e-learning was possible through the enhancement of the access to computers and to Internet. This fact indicates a reality that became more and more stringent and that cannot be ignored. These challenges were integrated into national programs and were supported by general actions. E-

learning became a common place and a widely spread educational tool. The present chapter tries to offer a snapshot of this very dynamic component of the Romanian educational reality.

Chapter-30

The article is devoted to the history of distance learning development and to the current state of e-learning in Russia. A new classification of distance learning development stages is proposed by the authors. Authors highlight three stages of this educational form's development, comparing it with the stages of political, social, and economic changes in the country. In the second part, the analysis of the basic directions of development of e-learning is presented; each direction is explained by the most typical examples. Chapter is beginning with brief information about Russia and a structure of the present education system.

Chapter-31

Saudi Arabia as one of the largest Islamic countries in the world with the largest reserves of petroleum, has radically improved its educational system as a result of comprehensive development programs. General and Higher education is experiencing capacity issues which lead to the need to adopt distance education as an instructional strategy. The following chapter describes the country, its tertiary education system and current developments in distance education and eLearning.

Chapter-32

eLearning and distance learning facilities are important for regular students but also for employed people (important support for lifelong learning). eLearning can contribute to the development of the Educational System in the West Balkan region, and have a high social importance with direct impact on the creation of new job opportunities. Quality and capacities of educational institutions must be significantly improved from elementary schools to doctoral studies. The need for modernized and ICT supported learning processes, adapted to specific local education system needs, is evident in Serbia today. Implementation of eLearning as a support to education represents the opportunity for everybody to have the access to educational materials. It will enable equal opportunities for all population segments, to continue with their education. In this chapter different educational issues and aspects in Serbia today are discussed. Current state-of-the-art and further necessary steps are pointed out and suggested.

Chapter-33

The purpose of this chapter is to provide a view of the eLearning's state in the Slovak republic and possible implications for policy and practice. The chapter does not seek to

inform on a technical level, it assumes knowledge of terminology definitions, theories, research findings and case studies of eLearning and offers a view of the driving forces for eLearning, a historical context for its development in the Slovak republic. First, the chapter introduces the general data about Slovakia, such as history, geography, people, educational system and its priorities, the role of distance education in the country, ICT and the role played by eLearning in it. Drivers and barriers for them in Slovakia are assessed.

Chapter-34

eLEARNING IN SLOVENIA
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President Center for Scientific Visualization, SLOVENIA**......………825-852**

The author wants to point out in this chapter that Slovenia as a small country with nice, still well preserved nature needs to develop especially intensively its knowledge pool because it has no important natural resources like coal, gas etc. but it has already well educated people who need to stay update with their knowledge also in the future and of course the young generations need to obtain the best education possible. As it will be shown later on, the funding for education in Slovenia is sometimes more intensive, sometimes less intensive and especially in less intensive periods the e-learning becomes even more important since online or computer (internet) aided learning is the cheapest and most "democratic" learning. I grew up in times before computers and so I feel the revolutional importance of improvement the computer-aided learning offers now.

Chapter-35

eLEARNING IN SWEDEN
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Eva Edman STÅLBRANDT,
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Sweden is viewed as a high-tech country with a top rank in e-readiness. It is recognized as a country of high speed in adopting new technology. Since long ago Sweden is known as world leading in educational ICT. All Swedish schools have had computers and Internet for many years. As Sweden is decentralized, differences are vast between different municipalities and schools. Sweden has no national e-strategy for schools. A current key challenge is how to transform e-learning from individual initiative to university culture. Another challenge is the teachers' and academic staff's lack of ICT skills and knowledge. Pupils and students are often more knowledgeable than their teachers. Swedish educational ICT discussions are to be considered as quite mature and therefore this chapter can make a contribution to countries where ICT is being introduced in the educational system.

Chapter-36

eLEARNING IN SYRIA
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The Information Age, the digital knowledge, the knowledge society, knowledge economies and cyber schooling have by the beginning of Third Millennium intensified in speed, working space, quality content, and human concerns. They are now looked upon as a measurement index for locating the ranks of nation states on the ladder of current world civilization. While developing countries (DCs) in general spent the second half of the twentieth century in consuming what the industrial nations are producing in the fields of information and communication technologies, they (the DCs) launched very recently however, several pursuits in this decisive sphere, not as much in the industries of ICT but rather in their applications to business, management, production, education, recreation, and more. In fact, Syrian Virtual University (SVU) is the first to none until this date in Arab Middle East. SVU has fame in on-line education, and attracts students from all over the world. As such, this chapter endures the purpose of the current book in

providing a real picture of Syrian applications of ICT into education, thus clarifying Syria ICT status comparable to other nation state world wide.

Chapter-37

eLEARNING IN TAJIKISTAN
E-Learning and ICT Development in Education
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International Project Manager, BELGIUM
Khurshed I. TESHAEV

In a country once devastated by a civil war during the mid-90s as it was Tajikistan, a new economy and new challenges have been brought through the beginning of the twenty-first century. As Tajikistan steadily recovers from economic and social collapse, government, civil society, and the private sector are all looking for ways to accelerate development. One of the avenues for recovery has been put in Information Communities Technologies (ICTs) and the benefits expected from them. In the present chapter, we concentrate on the efforts sustained in Tajikistan to introduce and spread the use of ICTs in the classroom in particular and in education in general. Although the wide spread of new technologies is a relevant issue at educational policy level, however, main challenges and resource constraints abound. These in turn are hindering the maintenance of a steady pace of technological development in the country. We describe, hereunder, the current status of ICT development and elearning in Tajikistan.

Chapter-38

eLEARNING IN TUNUSIA
E-Learning Challenges in the Millennium,Tunisia
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Higher Institute of Languages in Gabes, TUNISIA
Ali Hechemi. RADDAOUI

The purpose of this paper is to provide a general overview of the e-learning situation in Tunisia and a peek into specific e-learning initiatives conducted by both authors. Many support institutions have been put in place to oversee and assist with Tunisia's e-learning agenda: the Tunisian Internet Agency (ATI), Virtual University of Tunisia (UVT), the Tunisian Association for the Promotion of e-Learning (APREV), the Tunisian Association for Digital Solidarity, among others.

With better technological provision, access to these courses increased dramatically. Over and beyond the need for technology and training, the following conclusions stand out.

Chapter-39

eLEARNING IN TURKEY: Past, Present and Future
Gonca Telli YAMAMOTO, Okan University, TURKEY
Cengiz Hakan AYDIN, Anadolu University, TURKEY**…………..…961-987**

eLearning offers many opportunities for individuals and institutions all over the world. Individuals can access to education they need almost anytime and anywhere they are ready to. Institutions are able to provide more cost-effective training to their employees.

Not only globally but also in every country e-learning market is growing fast. The Turkish e-learning market is especially showing a significant growth in higher education and corporate settings.

This chapter intends to draw a big picture about the Turkish e-learning market. It mainly focuses on past and present status of e-learning implementations and examines how the institutions have been going through a transition to be able to reach 'e-learners'.

Having an insight about the status of e-learning market in Turkey can be very beneficial for the entrepreneurial accessions to this market and also for the future collaboration opportunities.

Chapter-40

eLEARNING IN UKRAINE
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International Research and Training Center for
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Alla MANAKO
International Research and Training Center for
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> E-learning in Ukraine is in the focus of both academic research
> and educational practice. It is considered as a vital element of
> educational innovations, an important component of modern
> education and a bridge to e-society. One can observe both
> grassroots activities of the teachers looking for technologies to
> increase students' motivation, learning efficiency and depth of
> understanding, and institutional efforts to support and upgrade
> teachers' competencies in information and learning technologies.
> At the same time, research area covers models and methods for
> learner's assessment, control and support, intelligent
> technologies for innovative interfaces, knowledge representation
> and processing, decision-making and problem-solving. This
> chapter describes socio-economic conditions, educational
> landscape and technological infrastructure that constitute an
> environment for e-learning development and deployment in
> Ukraine. It demonstrates some results, progress and prospects for
> e-learning, as well as research potential for collaborative projects
> and cross-cultural educational studies.

Chapter-41

eLEARNING IN
UNITED ARAB EMIRATES
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Abu Dhabi University, UNITED ARAB EMIRATES
Nidhal GUESSOUM
American University of Sharjah,
UNITED ARAB EMIRATES**………………………...………1009-1028**

The learning process has been a passive process for so long. However, with the advent of ICT in recent years has a direct impact on such a process. Online learning was introduced and implemented by western universities.

The United Arab Emirates is no different from other nations that benefited from the ICT in the education sector. Since the formation of the federal government, one of the targets was to improve the education and to implement the latest technologies within such a sector as well others. In this chapter we aim to show the evolution process that education in the UAE went through. The plans that were adopted in order to make the UAE as a hub for higher education in the region are also presented. The chapter reflects the background of the UAE anthropologically and educationally. We try to show the implementation and usage of ICT in higher education and its relevance to the government's long term plans. Two cases are presented, showing the implementation of ICT and the encouragement of online teaching at two important universities of the UAE. Issues associated with implementing and using of ICT in the delivery of online teaching is also presented.

Chapter-42

eLEARNING IN UZBKISTAN
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Advantages brought by development and expansion of information and communication technologies are more and more realized in the world today. Their revolutionary impact spread on state body's activities, civil society institutions, economic and social spheres, science and education, culture and people's life style. Uzbekistan is not aside of those processes, it participates more and more actively in formation of global information society. The long-term strategy of social and economic development of Uzbekistan is also oriented to information society, create and realize of prerequisites and conditions of its formation.

Those strategies allow Uzbekistan to integrate into the world economic. To implement those strategies; a number of legislative and regulatory acts were adopted. In particular, Decree of the President of Uzbekistan #3080 dated 30 May 2002 determined objectives of development and implementation of information and communication technologies. Also in accordance with this Decree started development of computerization and information and communication technologies, the customs and tax privileges have been set, measures on stimulation of entrepreneurship have been determined.

The Last Words

Foreword

e-LEARNING IN PRACTICE:
Covering Thirty-Nine Countries

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Editor-in-Chief of Asian Journal of Distance Education

e-Learning has developed greatly as the method of first choice for distance education and we are seeing a convergence between distance and conventional face-to-face education -due to moves by conventional education providers. Conventional universities and schools throughout the world are pro-actively adopting distance learning technologies not only to reach the unreached providing wider openness and access but notably as augmentation for their current on-campus students. The use of computers in education can be classified into four types; - computer-assisted instruction (CAI), computer-managed instruction (CMI), computer-based multimedia (CBM), and computer-mediated communication (CMC). The fourth CMC involves computer-to-computer transactions including email, is sometimes referred to as online learning, and is commonly referred to as 'e-learning' (Kawachi, 2005 ; Kawachi 2008a).

Under e-learning, educational interactivity can be among the institution(s), tutor(s), and student(s), for both academic purposes as storage, delivery and retrieval of content, and non-academic purposes as administration and counselling support. Library resources support services are the most common CMI use of computers. Asynchronous emailing appears to be the most common CMC use. In highly developed centres of excellence such as in Hong Kong, Japan, or Korea, synchronous text-chat is common, and this occasionally becomes multimedia with the addition of digital graphics and even video transmissions along with plain text. In rural developing countries, computers have widely entered into classrooms in the past few years, though as recently as two years ago, for example in India, schools were despondent with their computers in the room and no educational interactivity taking place.

One reason why more educationally effective use cannot be made of these computers in the classrooms is the lack of regional infrastructure- such as no internet provision and inadequate or unreliable connectivity (regarding telephonic transmission rate or very low bandwidth) -preventing the use of multimedia and e-learning. These difficulties in connectivity and infrastructure- seen in many of the countries reviewed in this book - could be circumvented by the use of CD-hybrids.

e-Learning is generally taken to mean learning that has utilized electronic means of information and knowledge management in a wide sense, and social constructivist learning through computer-mediated communications in a virtual space in a narrow sense. E-learning is a relatively new term, and derives from the development of alliances and consortia consisting of corporate businesses and education providers emerging at around 1995 (Jegede, 2001, p.75). This development has occurred through the internet and has brought internationalization through sharing of knowledge. It has also brought globalization and different cultures into juxtaposition, and into superimposition. Now conventional face-to-face institutions are opting to utilize e-learning and open learning values in the classroom.

Many countries including most reviewed in this book generally hold onto an apprentice model and experiential learning through a cooperative process. Even with e-learning technology, the apprentice model is still employed. Internationalization through e-learning has brought the two processes of collaborative learning and cooperative learning into the same forum. In many of these countries, the social economics has meant a student who is busy e-learning is more isolated from his or her surrounding culture, than a student for example in London where the surroundings may be all high technology, conducive, motivating, encouraging and accepting of a person engaging e-learning. In rural developing countries, it is easy to imagine that the student is not only physically alone but psychologically and emotionally as well -without social infrastructure supporting e-learning. Thus, computers and multimedia are not simply instruments for the student but provide a total environment for learning. The reader is referred to Kawachi (2005) for comparative review of e-learning in Bangladesh, (mainland) China, Hong Kong (China), India, Indonesia, Iran, Japan, Korea, Malaysia, Pakistan, the Philippines, Singapore, Sri Lanka, Thailand, and Vietnam. That review also discusses in detail the need for e-learning scaffolds and different pacing provided through e-learning. These topics and gender, old age learning, group size and others are not dealt with in detail by many of the country

reviews in this book, so readers will find that there are areas or trends that need further exploration.

This book reviews e-learning in thirty-nine countries. A close reading shows that there are clusters of some common trends and challenges which could be addressed regionally through satellite or optical cable. This book provides an excellent need analysis that should be useful for funding agencies and global organizations such as UNESCO and the World Bank. The thirty-nine countries are geographically in two wide swaths from North to South down the eastern side of Europe, and then from West to East across northern Africa into Central Asia. The countries include from northern to southern Europe (on the eastern side) Norway, Sweden, Finland, Estonia, Latvia, Lithuania, Belarus, Poland, Ukraine, Slovakia, Moldova, Hungary, Slovenia, Romania, Serbia, Bulgaria, Macedonia, Turkey, and Greece. Then from north-western Africa across to the Middle East, up through to Central Asia, the countries are Morocco, Algeria, Tunisia, Egypt, Israel, Palestine, Lebanon, Jordan, Syria, Iraq, Saudi Arabia, United Arab Emirates, Oman, Iran, Armenia, Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan, and Russia. The countries basically surround Western Europe.

These chapters give a lot of background information on each region, and then describe the education systems that current exist. Within these systems, e-learning is covered alongside conventional and distance education. Naturally the countries have various levels of e-learning infrastructure and practice. When arranged geographically, some trends can be seen from one country to another, throughout several countries in most cases. These trends are likely the outcome of the sociopolitical development in the regions. Superimposed now on top of these sociopolitical trends, we can now see individual identities emerging and national characteristics of e-learning in practice. This review examines the individual countries, then the regional groups, and finally draws some critical insights from the overall meta-analysis.

In previous published work (Kawachi, 2008b, pp. 609-610), the need for international cooperation was noted concerning sharing resources.

> *"After reviewing all these Papers in English and a brief look at the others not in English, some points do seem to be noteworthy; for instance all 22 literature references cited in the Paper in Portuguese from Brazil are references to books and articles in only Portuguese.*

This should give us something to consider deeply - along the lines that there is more to global distance education than the Anglo-American perspective. ...

Even in one's native language, reading research is often a complex and deeply puzzling task at most times, and in a second or third language the expressed nuances are very likely to be overlooked. We should note therefore that we need to build research teams that bring in speakers of different native language to somehow increase coverage of the issues, not yet globally perhaps, but beyond the Anglo-American view of distance education."

Here, the Editors have collected papers from 39 countries to provide a rich resource -all in English. While a few sentences can be sourced to Wikipedia, each paper overall has offered to the rest of the world in English valuable insights. The Paper on e-learning in Russia, for example, cites 18 references and all of these are references to the literature in Russian. All 20 references - except one to a UNESCO report in English- are non-English in the Paper on e-learning in Kazakhstan. This clearly demonstrates the great achievement of the editors in producing an open resource for sharing with the world. In the fast evolving internet age perhaps we should expect links to fail, and researchers need the coping strategies to re-source many of the reference links given in this collection.

In many regions (and in some cases whole countries), there is inadequate infrastructure and such poverty that students cannot afford to have internet access at home. Even in the most advanced Western countries broadband is not universal, so poorer regions should develop coping strategies at a slower pace within their means. One important aspect of e-learning is learning to manage with what resources you have available: living within one's means.

Spender (2002, p. 25) characterizes e-learning as education being a commodity, rather than as a right; that e-learning is for all, rather than with controlled entry; e-learning and skilling is a lifestyle, rather than a qualification; e-learning occurs at any time, any place, any pace, rather than as a scheduled activity; e-learning is making information, rather than taking in content; e-learning is demonstration of performance, rather than memory testing; and e-learning is collaborative. According to Spender's definition, e-learning does not generally take place in many of the countries reviewed in

this book, notably the developing countries in which e-learning is used for administrative purposes or cooperative -but not collaborative- learning.

Comparative Infrastructure for e-Learning in Selected Countries :
Latvia
While teacher in primary and secondary schools are computer illiterate, Latvia has the highest penetration of work-place e-learning in Europe.

Lithuania
In the past five years, many young adults have emigrated, so e-learning is now focusing on older adults at work - mostly re-training that can help the students in full-time employment get vertical and horizontal job mobility. In similar fashion, in-service teacher education and training also use work-place e-learning.

Belarus
Despite a relatively young educational system, government disinterest to support e-learning and more than half the population speaking Russian have led to the current status here of most students relying on Russia for e-learning resources, with only 1% of students officially studying at a distance in the country. The very limited educational e-resources produced within the system are basically just digitized print versions. Accordingly teacher training is not keeping pace with advances in e-learning technologies and methodologies.

Macedonia
In the general population, Macedonia has a relatively high penetration (30%) of internet access at home. This rises to 60% for students and those who have graduated from college. Unfortunately, only 5% of the old aged persons and housewives had internet at home. Thus while e-learning is recognized for institution-based education, e-learning is not used for community-based lifelong learning. The researchers as authors here remain steadfast in their conviction that e-learning should and will remain within the university function. This does not bode well for open community-based lifelong learning. Moreover there is little awareness among conventional university teachers of how to teach online both in practice and in theory.

Palestine
Palestine has the single-mode distance-education Al-Quds Open University with 500 full-time and 1500 part-time teaching faculty serving 60,000

students (60% women). With international aid assistance in training, school teachers and universities work collaboratively in e-learning networks with counterparts in Britain, Belgium, France, Italy, Spain, Egypt, Jordan, Lebanon and Syria.

Kazakhstan
Teachers are generally too poor to be able to afford their own computer at home, while many parents are buying internet access for students at home, creating an ironic digital divide where the students are more computer literate than the teachers.

Russia
Being geographically the largest country in the world, the teachers in distance education are faced with many challenges and little time to develop e-learning resources using modern learning technologies. As a result, e-learning resources are of poor outdated quality and limited in quantity.

Comparative e-Learning Among Regional Countries:
e-Learning can be analyzed with respect to technical vocational education and training and at-work learning. Such learning can represent the sub-region's readiness to engage and profit with e-business including use of the internet for business. Together with e-business opportunities, e-learning is correlated with lifelong learning. This involves adult education for literacy in poor regions and sociocultural participation in regions with high literacy. In the developed countries therefore, e-learning can be associated with their sociocultural participation: the extent to which the population engage community cultural and traditional events.

The Scandinavian countries are well known as highly developed for e-learning (EIU, 2009), with Norway moving up from 11th last year to 4th position in the world (after Denmark 2009 1st, 2008 5th), Sweden moving up from 3rd to 2nd position, and Finland at 10th. They are thus well positioned for e-business and sociocultural participation.

In central Eastern Europe, Estonia and Latvia are the two leading countries for e-learning (the Czech Republic is among these leaders but not reviewed here). In the Middle East, Israel is the leading country for e-learning, followed by the UAE.

The overall e-readiness of the thirty-nine countries where data are available are given here as position (1~70) among the top 70 countries in the world (EIU, 2009) ;- Norway 4, Sweden 2, Finland 10, Estonia 24, Latvia 37, Lithuania 32, Belarus (data missing; estimated 41), Poland 39, Ukraine 62, Slovakia 36, Moldova, Hungary 35, Slovenia 29, Romania 48, Serbia, Bulgaria 47, Macedonia, Turkey 43, Greece 33, Morocco, Algeria 67, Tunisia, Egypt 57, Israel 27, Palestine, Lebanon, Jordan 50, Syria, Iraq, Saudi Arabia 51, United Arab Emirates 34, Oman, Iran 68, Armenia, Uzbekistan, Kazakhstan 69, Kyrgyzstan, Tajikistan, and Russia 59.

There is a close correlation between their global ranking and geographic location, suggesting that regional development could be provided to clusters of countries. The brief summaries given above for selected countries illustrate the regional trends across several countries in geographic clusters.

In many aspects, most reports from developing countries are predictable. For example, "one of the obstacles … is the delay and slow pace of equipping public schools with computer laboratories and internet access. Another obstacle is the lack of qualified teachers … [And] the greatest obstacle will be how to use the ICT in teaching in such a way as to make technology an effective tool that aids students in learning, both in school and at home, and not just in locating information but also in answering questions, choosing relevant information, and constructing knowledge through individual and group efforts. …[While in universities] the outcome of implementing ICT on students' learning is still unclear due to the distinct paucity of evaluation and assessment studies on ICT use in teaching and learning" (cited from the Conclusion, Lebanon).

It seems clearer after reading these country chapters that more cooperation is needed among countries to help each other free through simply communicating. Following this – and growing out from this – should be collaboration that tackles the questions and challenges that countries face in common within a region. With the internet, many poor believe that the simple answer is money.

This is not foreseeable and anyway is not likely to succeed in practice. Getting hardware is not going to resolve the issues. e-Learning involves conversations and openness, with reflection on own practice and own ideas. In this sense, many developing regions are indeed poor.

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BIODATA and CONTACT ADDRESSES

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Preliminary Words

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E-Learning offers many opportunities for individuals and institutions all over the world. Individuals can access to education they need almost anytime and anywhere they are ready to. Institutions are able to provide more cost-effective training to their employees.

E-learning context is very important. It is common to find educators who perceive e-learning as internet-only education that encourages a static and content-focused series of text pages on screen. Others envisage the shallow and random online messages that are typical of a social real-time chat session, and wonder how that type of communication could add any value to academic discourse. Some may have experienced e-learning done poorly, and extrapolate their experience into a negative impression of all e-learning.

While e-learning started in the early 1970s with mainframe computing, it really didn't take off until the advent of CD-ROMs and the World Wide Web. Multimedia CD-ROMs in the early 1990s allowed us to develop programs that had color, action, and interactivity. These were a major advance over text on monochrome screens that characterized educational computing in the 1980s.

The invention of the World Wide Web in the early 1990s introduced the ability Access resources from anywhere in the world through Universal Resource Locators (URLs). But the Web was a step backwards in terms of animation and interactivity because of the slowness of computers, modems and the network at the time it was introduced. It is only now that the capabilities of networked computers are catching up to the level necessary to produce the quality of e-learning that was possible using CD-ROMs. (Woodill, p. 9)

The new learning landscape is a multichannel learning environment that can be seen as a "complex adaptive system". For the most part, this environment is "self organizing" and because of that it is difficult to exactly predict how it is all going to turn out in the next five years. But, there is no question that a

major shift is taking place -a turn from instructor centric curricula towards learner centric searching for relevant resources of learning as need.

The shift is from instructor controlled classroom learning and instructor controlled e-learning to a mix of approaches that includes instructor control when appropriate (for specific certifications, for example) along with many different channels of resources and requirements from which learners can choose and explore.

Emerging e-learning will not be simply mixed with "face-to-face" learning to form blended learning. Rather, all learning will be multichannel learning. The "e" in e-learning will gradually disappear, as electronic support for learning by any means becomes invisible and taken-for-granted (Norman, 1999, quoted from Woodill, p. 16.).

E-learning continues to evolve with new delivery methods – to PDA or mobile phone (called MLearning) and via blogs, wikis, Podcasts, and easier-to-use tools.

There is also a trend seen in the transition from training to learning that leverages the power of the Internet to go beyond eLearning through knowledge management, competency management, and performance support and to HR processes like performance management, talent management, succession planning, and hiring. Web 2.0 (and e-learning 2.0) technologies are driven by collaboration. It's the next phase of eLearning (Clarey, p.29).

Today's learning and education technology is developing with overwhelmingly what we guess for tomorrow. In those days eLearning technology application changed its structure by combining via new discussion technologies such as mLearning, tLearning and uLearning. Developed chart below, show us the latest trends of technology which, education institutions should have to adopt their education or material producing strategies according to newest technologies indicated in chart.
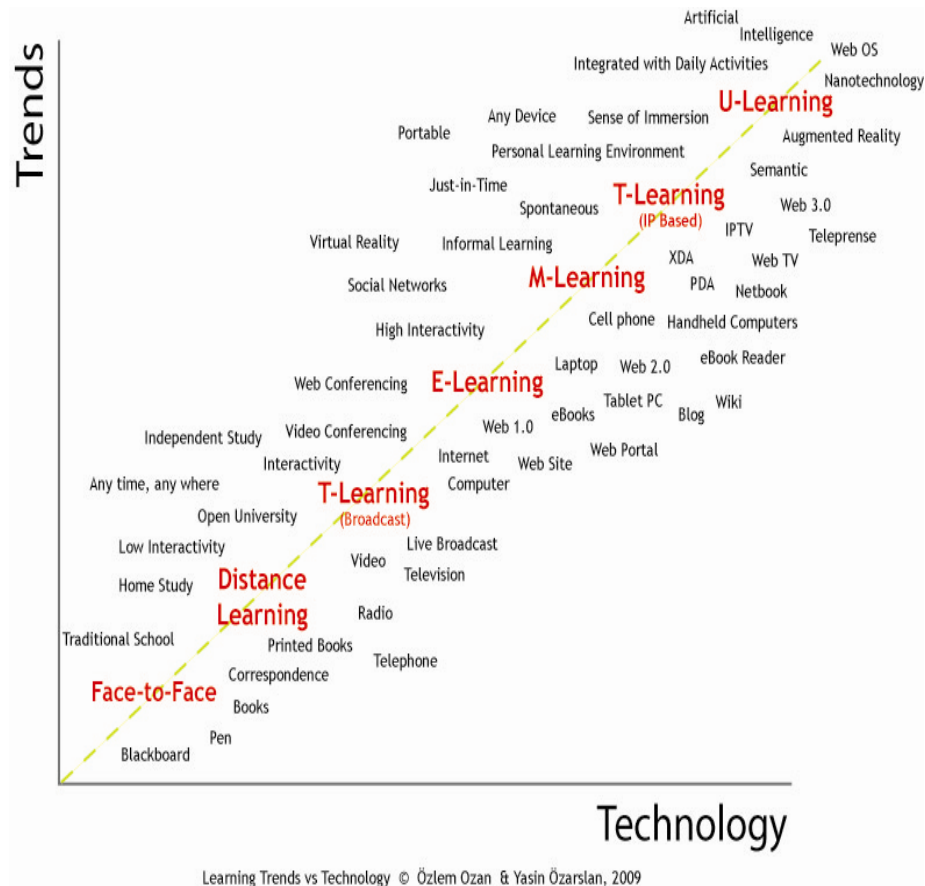
Learning Trends vs Technology © Özlem Ozan & Yasin Özarslan, 2009
Source: Yamamoto, G. T., Ozan, O & Demiray, U. (2010).

Consequently, Yang & Yuen indicate that learning has been dramatically influenced by information and communication technology. There is no doubt that information and communication technology keeps bringing excitement in to learning and communication. Multimedia on the internet, telecommunications, wireless applications, mobile devices, social network software, Web 2.0 etc are radically redefining the way people obtain information and the way to learn (Yang & Yuen 2010, xxiv)

Policymakers, international organizations, higher education institutions and researchers in the field of education agree that Information and Communication Technologies (ICT) have the potential to stimulate international collaboration, to create flexible learning paths and to open the

borders of the university. Throughout the last decade, numerous initiatives have been set up to experiment with the establishment of ICT-enhanced activities, under various frameworks and to varying degrees of success. The higher education area is a very complex world with a diverse list of providers; these include traditional universities, distance education providers, public and private institutions, associations and consortia. (Schreurs, p. 7, Preface)

Western and East Asian nations are increasingly embracing e-learning in education and training, both within their classrooms and in distance education. E-transformation has been much slower in the education systems of the Eastern Europe, Nordic, Turkic, Middle East, Arab and North African countries. It is therefore considered timely to conduct an inquiry into the ways and extent of e-learning in these countries, the factors driving and constraining such developments, and how progress might be further encouraged. Searching the literature, it is possible to find reports, accounts, research findings and conference presentations on e-learning in these countries but many of these are in languages other than English. This book will feature studies in English language developed in collaboration with colleagues in these various countries and so will be a first and of international significance. It will be so conceived and so written as to be useful to policy-makers, managers, practitioners and researchers.

The book will examine the emergence and growth of e-learning. The use of the 'e' prefix indicates the application of information and communication technology (ICT) in government, finance, and all forms of socio-economic and community development.

This book will take all of these into account, plus the roll-out of technology, but will concentrate primarily on definitions, theories, research findings and case studies of e-learning in formal education and specifically in higher education.

Many of the institutions in the countries to be reviewed also make extensive use of traditional teaching and methods and media, so this book will not only consider e-learning and mobile or m-learning in isolation but in blended or mixed-mode learning, both in classroom environments and in distance education. It will examine and discuss at:

- How and why ICT is working its way into learning in the various countries, its potential, and how its integration and broader use may be promoted.
- The constraints on e-learning development.
- The benefits and cost benefits of e-learning.
- Internet penetration and usage rates
- Government initiatives to promote ICT literacy and the use of e-learning in education and training.
- The extent and nature of e-learning and blended learning provision.
- The cultural and pedagogical implications of e-learning.
- The policy-making and organizational dimensions of e-learning

To obtain authors for this study, the editors conducted contact with colleagues known to be interested in, knowledgeable about, and experienced in applications of e-learning in the following countries: Armenia, Algeria, Belarus, Bulgaria, Egypt, Estonia, Finland, Greece, Jordan, Hungary, Iraq, Iran I-II, Israel, Kazakhstan, Kyrgyzstan, Latvia, Lebanon, Lithuania I-II, Macedonia, Moldova, Morocco, Norway, Oman, Palestine, Poland, Romania I-II, Russia, Saudi Arabia, Serbia, Slovakia, Slovenia, Sweden, Syria, Tajikistan, Tunisia, Turkey, Ukraine, United Arab Emirates and Uzbekistan. Some of the countries are participated with two chapters such as Iran, Lithuania and Romania

This eBook is designed and presented in two volumes. The fist volume consists of the country cases of Armenia, Algeria, Belarus, Bulgaria, Egypt, Estonia, Finland, Greece, Jordan, Hungary, Iraq, Iran, Israel, Kazakhstan, Kyrgyzstan, Latvia, Lebanon and Lithuania. The second volume gives a place to the country cases of Macedonia, Moldova, Morocco Norway, Oman, Palestine, Poland, Romania, Russia, Saudi Arabia, Serbia, Slovakia, Slovenia, Sweden, Syria, Tajikistan, Tunisia, Turkey, Ukraine, United Arab Emirates and Uzbekistan.

As being all we editors wish to thank all of those involved in the collection, without whose support, the project could not have been satisfactory completed. The work of this magnitude and significance is not possible without the support, efforts and time of many persons. At the outset, as we editors we would like to thank all of the authors for their excellent contributions. Trough your efforts, we have been able to produce this valuable resource. It has been an exciting experience working with colleagues from across the world.

We also, take this opportunity to thank those colleagues who devoted time in developing and submitting their proposal but later on could not join our team such as Azerbaijan, Iceland, Denmark, Libya, Turkmenistan and etc. We hope and believe to join with them in other studies in due course.

And also, my thanks go to my dear colleagues Dr. Ramesh C. SHARMA and Sanjaya MISHRA from IGNOU-India, Dr Paul KAWACHI, from Open University of China, Dr Colin LATCHEM from Australia who consultant and writer in distance education. He works mainly in Australia and the Asia-Pacific and Dr Tapio VARIS, Professor, UNESCO Chair in global e-learning, Vocational Education with particular reference to Global Learning Environments University of Tampere, Faculty of Education Finland and for their highly motivating me, to start to this book project at the beginning of February-March 2009 for giving and sharing their very valuable academic support and experiences.

As well as providing articles for his chapter, most of the authors are supported us to start to this project. So, we are particularly grateful to the authors for their excellent contributions in this crucial and growing area of research, helped to promote interest in project. Hereby, I would like to declare the names and affiliations of my authors here but they are more than 70 authors from 39 different countries and from more tan 40 universities and 14 institutions with company for all 42 chapters. But, you will see their names and a brief biodata and full contact addresses at the end of chapters with their photos also.

The book starts with my dear colleagues Emeritus Prof. Dr. Tony BATES and Prof. Dr. Paul KAWACHI's forewords. Dr Bates currently he is Chair of the International Experts Panel for the Open University of Portugal and President and CEO of Tony Bates Associates Ltd.

Dr. KAWACHI who is Professor of Educational Technology, teaching in the School of Foreign Languages and researching at the Institute of Distance Education at Open University of China, he is also Fellow of the Royal Society of Art- FRSA, and editor of The Asian Journal of Distance Education. And then book carries on with the country cases which are given in aphetically in order in spite of sectional or regional positions of the countries. The book ends with my dear colleague Prof. Dr Tapio VARIS's evaluation under the Last Words Section.

In this way we would like express our gratitude to Professor Paul KAWACHI, Tony Bates and professor Tapio VARIS once more for accepting to write a Foreword and The Last Words for this study. This has been mammoth task, but one which we have found most rewarding.

Initially, this book was thought to be published as an eBook. Then it was decided to get it published through by IGI Global Publishing. At the last phase of signing contract with IGI Global we denounced an agreement for the some serial reasons; mainly publishing date was September 2010. Once more my thanks go to all the authors for their understanding.

We have been demanding much information from them every now and then; they have been very gracious in accommodating me on every step. Due to their efforts and willingness, we were able to bring this eBook within the tight schedule. And also its printed version will be published as soon as possible. Moreover, we are still thinking republish, expanded and revised version for different regions of the world in due course.

Hope to raffish readings…

January 20, 2010
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Ugur DEMIRAY is Professor of School of Communication Sciences, Anadolu University, Eskisehir, Turkey He holds Undergraduate B.A. is in the a media Studies at Anadolu University, Faculty of Communication Sciences. And also, Ph.D. from Anadolu University, Social Sciences Graduate Institution, in May 1986. His researches are dealt with distance education application of Anadolu University, Ministry of Education and by other universities in Turkey. His researches carry on Communicational gaps of distance education students with their institution, and relationship of graduates and job market in Turkey. He is also interested about changing of ethical behaviors in the Distance education applications and marketing of distance education programmes and e-learning. In addition, he has an extensive experience publishing e-journal on distance education internationally under the patronage Anadolu University since 10 years, titled as TOJDE-Turkish Online Journal for Distance Education. TOJDE is a peer-reviewed quarterly e-journal and indexing in ERIC. He is also an editor, consultant editor, reviewer, or book reviewer for more than 15 international journals which are deal with distance education and educational technology. In addition, he has responsibilities on advisory boards and as referee for conferences, symposiums, and panels. He has co-authored and individually contributed chapters in some Turkish and international books. Up to now, he has around 15 imprint or eBooks dealt with distance education and many articles, which has been published national and international journals.

CHAPTER-21

eLEARNING IN MACEDONIA

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ABSTRACT

The focus of the analyses is elearning in Macedonia focusing on the developed strategy and analyses of the insights gained from a case study of particular distance education application in South East European University, Macedonia.

The analyses covers the impact of ICT on University's mission in achieving multicultural and multilingual education within Macedonia and the context of the Balkans, but also in a wider European and global context.

A number of issues related to such an impact and specific context of the University, and the developed strategy as well as analyses of its applications as case study.

The implemented strategy and solution as well as experiences gained in the process led to a number of important results as outcomes and recommendations for similar initiatives.

COUNTRY

Republic of Macedonia with a capital city Skopje, represents a major transportation corridor from Western and Central Europe to Aegean Sea and Southern Europe to Western Europe. It covers an area of 25,713 km².

It is located in South East Europe, bordering with: in south Greece, west Albania, east Bulgaria, north Kosovo and north-east Serbia. The country comparison to the world is ranked as 149 (according to The online Factbook (2009).

Figure.1.
Map of the Macedonia and region

The part of the southern Balkan Peninsula traditionally known as Macedonia is bounded to the south by the Aegean Sea and the Aliakmon River; to the west by Lakes Prespa and Ohrid, the watershed west of the Crni Drim River, and the Shar Mountains; and to the north by the mountains of the Skopska Crna Gora and the watershed between the Morava and Vardar basins. Skopje is the capital and the largest city of the Republic of Macedonia. It lies on the upper course of the Vardar River and is located on a major north - south Balkan route between Belgrade and Athens.

The existing infrastructure in the Republic of Macedonia in general terms includes the fixed public telecommunication networks, public mobile telecommunication networks and networks offering Internet access and other telecommunication signals transmission. The fixed public telecommunication network of AD "Makedonski Telecomunikacii" is based on 100% digital exchanges offering voice and data transmission, and a wide range of various services (voice mail, conference calls, emergency lines, 0800 lines ("green numbers"), 08xy ("blue numbers"), fixed telephony prepaid cards etc.

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Since October 1997 the provision of Internet services in the Republic of Macedonia has been liberalised through awarding concessions for data transmission, so that today five major Internet Service Providers are offering Internet services. According to (sei.gov.mk, 2008) there are a total of 126,000 Internet users in the Republic of Macedonia. The usage and utilization of the basic communications infrastructure in the local self-Government units is at a minimal level. Out of a total of 124 mayors, e-mail was used by 44 of them, only 23 used web-addresses, which mean that less than 35.4% have been using e-mail, and less than 18.6% were presented on a web-site 4.

Regarding the use of ICT and Internet according to (e-gov.org.mk , 2007), 31% of the total population have a PC in their household, and 69% don't. Understandable differences from the average figures were noted among participants with university degree 62%, urban population, 37%, employed 40% and pupils/students, 56%. The percentage of participants that have a PC in the category of people with primary education is 18%, people from the rural regions, 20%, housewives and retired people, 12%, and unemployed, 23%. 24% of the total population uses the Internet. Figures higher than the average were noted in the categories: men 28%, age group 14-29, 48%, participants with university degree 43%, pupils and students, 63%, employed 28% and interviewed participants from the urban population 27%. Figures lower than the average were presented in the categories: female population 19%, age group 40-49, 15%, age group 50-59, 11%, older than 60 only 3%, participants with primary education 19%, housewives and retired people 5%, unemployed 16% and participants from the rural regions in Macedonia 17%.

EDUCATION SYSTEM

The educational system in the Republic of Macedonia is made of primary, secondary, high and higher education. Teaching at all levels of education is constantly being developed and modernized. The advantages of interactive audio-visual methods and use of ICT in learning are increasingly used. Technical and technological innovations are becoming an inseparable part of learning instructions. According to (Macedonian MK National Strategy, 2009) education in Macedonia has undergone several reforms. Currently it is in the process of a radical reform according to Bologna declaration which will unburden it of ideological connotations and will make it compatible with European education.

Nowadays, in spite of the fast development and spread of electronic communication networks and information technologies, many people of different social classes, geographic regions and countries have very reduced access to info-communications technologies, and consequently less opportunity to feel the benefits provided by such technologies, i.e. the benefit of the digital convergence. People who do not have access to information and knowledge, i.e. those who do not have access to ICT remain in the zone of stagnation. This difference, which occurs as a result of those who have and those who do not have access to information, is known as "digital divide" and significant efforts have been made to bridge this digital divide.

Digital divide exists not only among different countries, but it can also exist between regions in the same country, between cities, villages and between people as individuals. The digital divide appears on two levels: the level of access to information which is bridged by access to ICT infrastructures and the level of using e-services5. Currently, in most of the EU countries, 30-40% of population is excluded from the benefits of information society.

In Macedonia, this number reaches 50-70% (according to studies made so far according to the document of National Strategy, 2009, only 50% of the population use computers and only 30% use the Internet). This part of population called digitally illiterate has the potential to experience serious repercussions related to employment opportunities and integration in the society.

In the case of Macedonia, the economic future of the state, especially the transition to a society based on knowledge, depends on e-inclusion of this group of people in the information society. Due to this fact in Macedonia, the process of mass education is forthcoming in this area. Adopted is the new vision of "society of the future", or the so-called information society of future, promoted by the European Union and expressed in the Lisbon Strategy. According to it, the entire society should be based on knowledge and innovations, i.e. a society where all the citizens will have easy and cheap access to information and knowledge via electronic communications infrastructures and digital technologies (according to MK National Strategy, 2009). As a technological platform necessary for ensuring accessibility of the new e-services and digital contents, and hence overcoming the digital divide as regards access to information, electronic communications have a central role in the creation and the development of the information society.

eLEARNING IMPACT ON EDUCATION

Despite dramatic changes in the curriculum and credit transfer system according to the Bologna process, pedagogy, usage of Information and Communication Technologies-ICT and service to society, Universities today in Macedonia and in the broader region are organized, managed, and governed in a matter little different from the far simpler colleges and Universities of a century ago. But will this be the case in the close future?

Technology and ICT bring a new way of learning and teaching, and so should be accompanied by new pedagogies and new approaches and strategies, according to (Sutherland, 2004). What will be the impact of e-learning opportunities and distance education on Universities in the future as well as on education and learning in a global framework is a very important issue.

We should anticipate and foresee this impact in order to avoid the undesired and possible devaluation of the education, long learning and knowledge construction. Strong business orientation and focus on e-learning without regards to quality long life learning could bring undesired devaluation and lower quality of education. One of the risks of such development could be the disappearance of the Universities as we know them today. Are there instead of Universities going to be distant certification centers? What will happen if we don't give special thought and anticipate the e-learning impact on Universities?

We anticipate two possible scenarios. The Universities as such organizational unit for education will stop to exist or they will not? In order to answer these questions and foresee the future of Universities an overview of education, impact of ICT, e-learning with special focus on distance education on Universities and educational model will be reviewed.

eLEARNING IN SEE UNIVERSITY

In South East European University-SEEU (http://seeu.edu.mk), in Macedonia along with transferring resources and using technology, SEEU is also transmitting cultures, values and educational methodologies. It can be argued that ICT as technology is seldom neutral. Some researchers and philosophers consider education and the use of technology as a means of favouring parental ways of knowing, which favour particular economic systems as discussed by (Biraimah, 2001).

SEEU uses the Angel LMS-Learning Management System. But Angel LMS is not a stand-alone solution, but rather is "blended learning," mixing hands on and technology-based training.

The strategy SEEU has employed takes into account the traditional classroom education and classical methodologies and compares the options and possibilities to apply them in combination with the current technologies in a blended manner following the guidelines from (Rosenberg, 2001). Below is the schema for service request.

Figure.2.
Service request
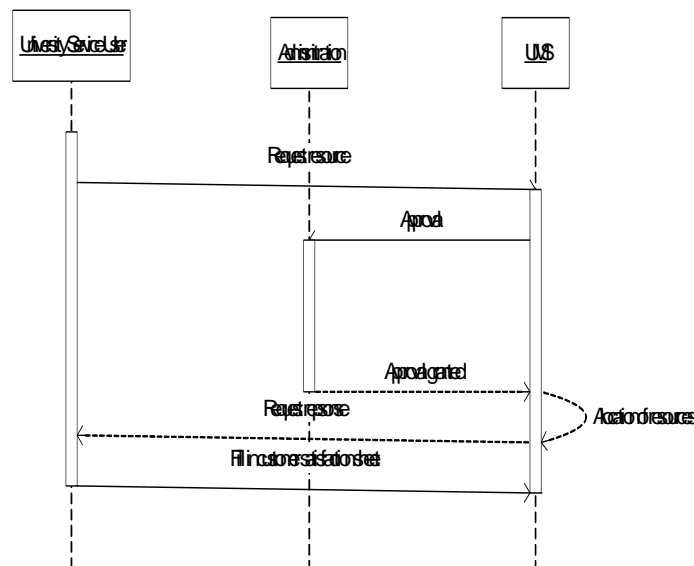
The regional multilingual and multicultural geographic specifics are an important factor driving the decision of how to implement technology-enhanced e-learning multicultural education. The complexities associated with multilingual and multicultural geography specifics invites a new dimension of teaching/training issues in providing borderless education.

Thus, special attention is given to the multicultural, multiethnic and multilingual society of Macedonia. For example, SEEU has introduced three official languages:

Albanian, Macedonian and English, representing an unique example in the country and wider region by incorporating not only multilinguicity but also multicultural aspects into the essence of the University existence. Also, much attention has been given to promote inter-ethnic understanding by ensuring a multicultural approach to teaching and research, and to develop the teaching programme in a broader international, regional and European perspective.

Central to SEEU's existence is the belief that multicultural education can help to solve interethnic conflict. The University was created with the goal of increasing the representation of the large ethnic Albanian minority in higher education in the Republic of Macedonia. At the same time, it was founded as a multicultural and multilingual university whose aims were clearly defined and sights aimed at European integration and full implementation of the Bologna Process. In all of these aspects, it was and still is a leader in the country and the region.

The current ethnic distribution of students at the University is 82% Albanian, 15% Macedonian, and 3% other (including Turkish, Roma, Greek, etc.). It is the only university in Macedonia that has a public-private and non profitable status, allowing it to charge small tuition.

This situation enables the University to keep tuition relatively low, while keeping services and opportunities for students and staff at a high level. From the start, SEEU has endeavored to be a truly modern university.

It has been able achieve a good degree of success partly due to support from USAID, which contributed a large part of the funding for the educational development of the university during its first six years (2001-2007).

This funding, administered chiefly by Indiana University, and included the establishment of both the Language Center and the Computer Center, two large teaching units on campus where all SEEU students at some point attend classes.

Other projects, all of which involve the use of electronic technology include the Instructional Support Center (providing training in modern, interactive teaching methodologies with an emphasis on the use of technology and intercultural communication), the Career Center (bringing students and local businesses together, and networking with other career centers in the region), the Business Development Center (providing services to local businesses,

again with an emphasis on using technology), and the Distance Education Center (an effort to extend the University's services beyond the campus and into surrounding communities).

SEEU has a unique language policy, which it defines as the "flexible use of languages." There are officially three main languages used actively in all communications on campus:

Albanian, Macedonian, and English. All students are required to study two semesters of either Albanian or Macedonian (Albanian students attend Macedonian language and vice versa).

All students (with the exception of a small number of students who enroll in degree programs in French or German) are also required to study English for four semesters, starting with general English and concluding with advanced study relevant to their chosen field.

Both the Business Administration and Computer Sciences and Technologies faculties also routinely offer courses taught by foreign professors in English.

In addition to language study, curricula in the five faculties at SEEU have a strong focus on technology. All students attend one obligatory course in basic Instructional Technology (IT) skills during their first year with elective courses available later.

The University is quite well equipped, having a number of dedicated computer labs, and sophisticated equipment in many of the classrooms. The University's website (translated into the three official languages) disseminates information to students and the community outside.

All students complete their schedules electronically and have access to their transcripts and other pertinent information via E-services. Teachers also manage their schedules on the same service and post grades on the recently implemented E-grading service. Instruction in all courses is supported by the course management tool Angel.

SEEU has also analyzed factors that influence instructional technology. From qualitative research and content analyses, the next factors that influence IT are: technological experience, student access to technology, multicultural background, language ability.

The second aspect of technology focuses on digital opportunities in developing confidence, skills, and abilities with educational technology.

Figure 3.
Multicultural and multilingual model
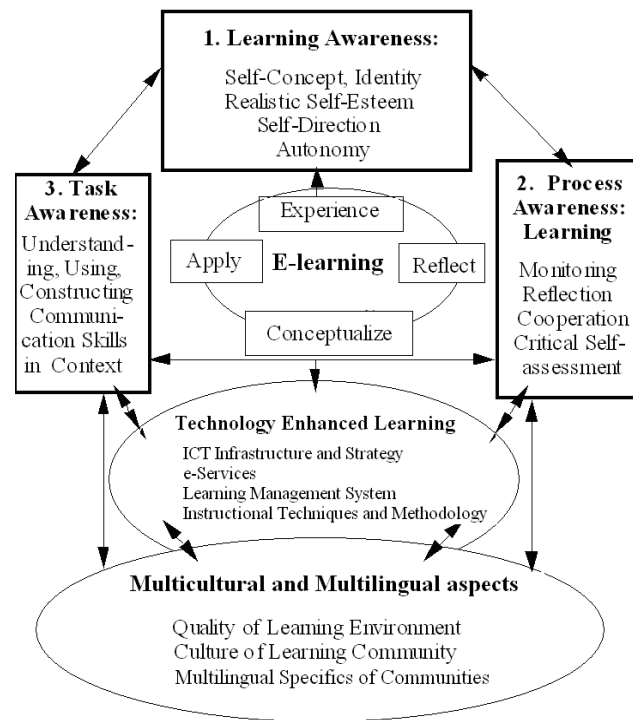
DISTANCE EDUCATION

Distance education is a form of application of educational methodology in the cases where the instructors and students are physically distant all the time or partially during the educational process. The distance education environment is an expanding market driven by several market forces. Many factors have contributed to the popularity and growth of distance education. Some are organizational, such as the desire to reduce cost or increase reach, and others are societal. Another is the desire to improve the quality of education, but there is little data to substantiate this to date. There is wide variety of implementation methodologies for the distance education as described by (Moore et al 2005) with focus in three areas:

- Course Design and Development;
- Management, Administration, and
- Policy; and The Global Span of Distance Education.

ICTs potentially offer increased possibilities for codification of knowledge about teaching and for innovation in teaching activities through being able to deliver learning and cognitive activities anywhere at any time. Learning at a distance can furthermore be more learner-centered, self-paced, and problem solving-based than face-to-face teaching.

Education is still fundamentally time-based and depends on standard curricula for groups of students. The model is that of a group of people starting at the same time, studying the same materials at the same pace, and ending at the same time.

The model and implementation methodology we have been implementing for distance education is based on synchronous video conferencing. Video conferencing is a form of communication and depends from the bandwidth of the connections, which can be interpreted as the speed with which information flows.

RESEARCH METHOD

The data for this research was gathered from research interviews with e-learning specialists and participants and a web based survey of students participating in distance education courses. The research method used was qualitative research and comparative analyses of distance learning factors influencing learning in a distance education setting. We have started our research based in the assumption that the learners construct their own knowledge, in that they interpret their experiences according to their own perceptions.

- The individual construction of knowledge and the refinement of the ability to do so do not happen passively and autonomously.
- Learning is situated. The social, motivational and emotional contextual factors of the learning situation decisively control the ways and means of the learning- and retention-process as well as the use of the knowledge and abilities.
- Active construction demands a high level of independence and self organization.

Our recommendations are to use this kind of structured approach described here to develop similar graphical user interfaces using the user centered approach that will include the users at all the development stages of the graphical interface. In order to asses Distance Education we have defined the following Distance Education Indicators:

- Students needs analyses,
- motivation,
- face-to-face interaction,
- social effects,
- organizational specifics,
- instructional design,
- accessibility,
- learning specifics based on learners needs and
- constraints in assessing the barriers that influence distance education overall in correlation with the environment and universal policies of the Universities.

ISSUES IN DISTANCE EDUCATION

There are two types of distance education delivery methods: synchronous and asynchronous distance learning. Synchronous meaning "at the same time," involves interacting with an instructor via the Web in real time. Asynchronous on the other hand means "not at the same time," allows the student to complete the course at their own time and schedule, without live interaction with the instructor.

The emulation and spontaneity generated by physical presence and social groupings often remain crucial. Likewise, face-to-face exchanges are important when they enable other forms of sensory perception to be stimulated apart from these used within the framework of electronic interaction. In order to achieve this we have used the approach with synchronous online video conferencing for course delivery and learning. The distance education environment is designed around the hypothesis that the face-to-face communication is crucial towards improving knowledge dissemination and enhanced learning overall.

According to Mehrabian (1981) and his studies there are basically three elements in any face-to-face communication: words, tone of voice and body language.

These three elements account differently for the meaning of the message: words account for 7%, tone of voice accounts for 38%, and body language accounts for 55% of the message. For effective and meaningful communication, these three parts of the message need to support each other in meaning - they have to be "congruent". In case of any "incongruence", the receiver of the message might be irritated by two messages coming from two different channels, giving cues in two different directions.

Figure 4.
Three elements in face-to-face communication

7%

38%

Words   Voice   Body
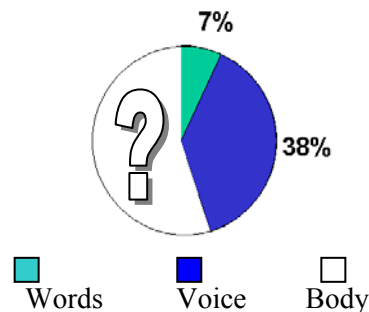
To compensate for the lack of face-to-face interaction, successful remote courses focus on innovative, technology-enabled methodologies to facilitate and enhance the student learning experience.

Based on these findings of the Mehrabian study and different research interviews with e-learning specialists and participants, focus group we have concluded that the synchronous type of distance education throw video conferencing would be encapturing most of elements of meaningful communication. Having the instructor in face-to-face communication with learners separated in location would still integrate the three elements mentioned above. However we have been evidencing that the body language element is not the same because of the static position of the instructor who is seating in front of the computer and usually reads and talks minimizing the body language.

Second issue is the bandwidth connection speed and lack of technical equipment to support learners and instructors. Third issue is the general apprehension of distance education as not effective from the general public

because of the lack of proximity between instructors and the learners.

Bandwidth is the limiting factor associated with communication. Most videoconferences today travel over 384K (kilobytes per second) which is generally today considered the minimum in applications where motion is critical. The connection between the two remote sites through which the information flows is called a communications channel. When numbers are associated with bandwidth they are usually given in bits/sec. The number is a simple rate. Sending video through a communications channel requires a lot of bandwidth. To achieve the frame/rates mentioned above would require an expensive piece of hardware called a CODEC. Because of the high price cost today are in widespread use compression algorithms that are the software schemes that determine a codec's ability to fit what would be a huge amount of data into the relatively small capacity of the connection line. The industry has come together to set standard algorithms. Current systems all recognize the H.320 standard and also the older international standard called H.261

In order to asses' further issues and barriers to enhanced distance learning we have used a web based survey.

CASE STUDY IN SEE UNIVERSITY, MACEDONIA

The survey was designed following the rule of thumb for all communications: Audience+Purpose=Design. This survey was divided into 9 (nine) DISTANCE EDUCATION INDICATORS to cover Students needs analyses, motivation, face-to-face interaction, social effects, organizational specifics, instructional design, accessibility, learning specifics based on learners needs and constraints. The survey had 18 (eighteen) questions in total. The questions were designed reviewing similar web based and printed surveys from similar research. It was communicated to the participants and provided as link in the message board of the eservice system of the University. There were 61 filled surveys. The total number of students engaged in distance education was 94 students from different faculties and study years. The answer rate according to the total number of students included in distance education was 64.89 %. The distance education program at the moment has 81undergraduate full time students, and 13 part time students, or in totals 94 students. The distance education courses during the spring semester 2006/2007 were:

- Advanced IT Skills with 7 students (Full time: 7; and Part Time: 0)
- Career Development with 82 students (Full time:69; and Part Time:13)
- Client Server Programming with students (Full time: 5 and Part

Time: 0)
The data was collected using Angel Learning Management System,
Angel (2007), survey options and further analyzed in Excel.

SURVEY ANALYSES AND RESULTS

Analyses of Motivation-Question 1 & 2 (from the survey)
Q1: Would you prefer taking a Distance Education course as compared to an
on campus course? (1) YES - (2) No.
Q2: I am considering taking a distance learning class because?

- the flexibility fits into my schedule
- to add another course to fill the requirements
- time constraints
- work schedule
- personal issues (other)
- course scheduling conflicts on campus

Findings
On the whole, 85.25% of respondents rated them self's as preferring distance
education over classical classroom while the others 14.75% rated them self's
as liking more the classical classroom over distance courses.

Discussion of the Findings
From the findings we can see that the student motivation depends primarily
on the balance in the two dimensions: the flexibility of the schedule and the
need to achieve the requirements.

The findings indicate that students are primarily motivated by the flexibility
of the schedule 40.98%, while 21.31 % were motivated just to add another
course to achieve the credit point requirements.

On the other side 14.75% of the students were motivated because of non
conflict with their work schedule in comparison to 11.48% that categorize
their motivation as personal issues (other), 08.20% are motivated to take
distance education course because of their course conflicts on campus, and
3.28 % of the student respondents were motivated because of the different
time constraints they have.

These findings indicate that the structure and curriculum of the distance

education studies should change and embrace the preferring factors for student motivation.

Motivation

- ■ the flexibility fits into my schedule
- ■ add another course to fill the requirements
- □ time constraints
- □ work schedule
- ■ personal issues
- □ course scheduling conflicts on campus
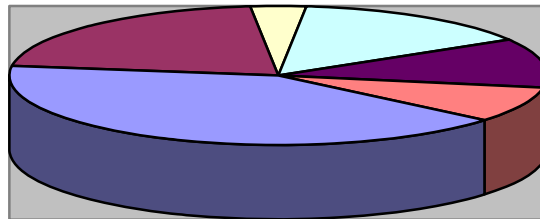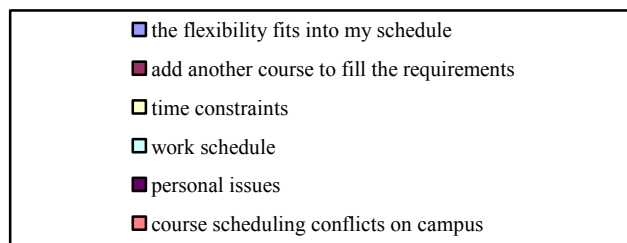
Students Needs Analyses-Q3 (survey)
My need to take a distance learning course is:

- high-I need it for graduation, my major or my job.
- medium-I could take it later, on campus, or substitute another course.
- low-it's for personal interest; I can take it anytime.

Discussion of the Findings
The findings from the student needs analyses indicate that 45.90 % of the students are categorised as medium, and they could take later that course, while 36.07 % need the distance education course categorised as high, on the other side 18.03% of the students respondents categorised their need as low-it's for personal interest (other).

These findings indicate that the student needs are not the most influencing factor for engaging in distance education.
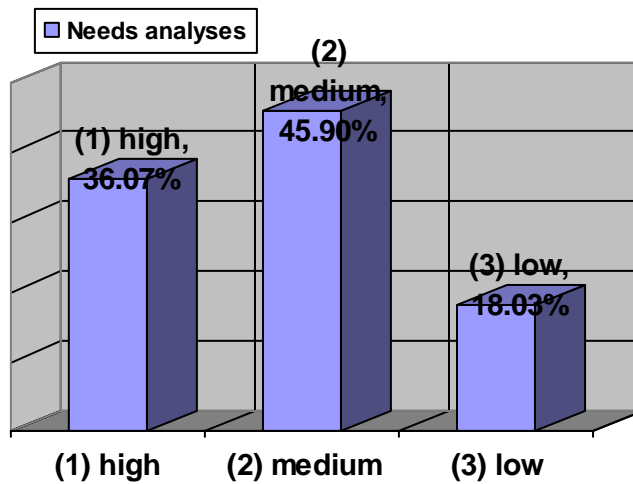
Face-to-Face Interaction-Q6, Question 6 (from the survey)
Face to face meetings with my instructor and my classmates:

- are not important to me
- are helpful but not essential
- are very important to me

Findings

Face-to-Face Interaction

| (1) are not important to me |
| (2) are helpful but not essential |
| (3) are very important to me |
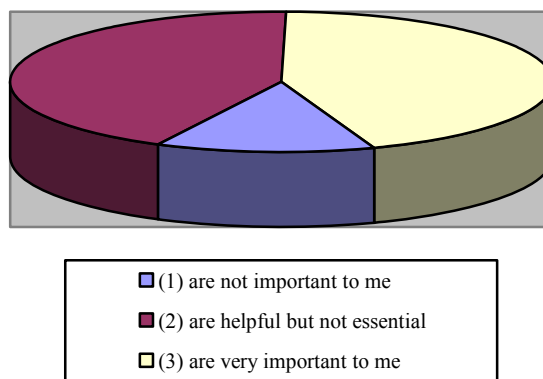
Discussion of the Findings

The face-to-face interaction with the instructor and other classmates 42.62 % of the students categorized as helpful but not essential, similarly 13.11% of the student correspondents feel that face-to-face interaction is not at all important and they could take a course independent of the instructor or classmates presence, on the other hand 44.26 % of the students need interaction with the instructor and classmates. This findings indicate that face-to-face interaction is however very influencing factor and we recommend it as necessity in any distance education course throw video conferencing or similar tools like Skype, MSN messenger, and other available today as freeware video communication software.

Social effects-Question 8 (from the survey)

When I have to work individually:

- I almost always complete the task successfully;
- I finish the task, but I feel a bit uncomfortable without the instructor's presence ;
- I rarely finish the task

Findings

Social Effects

- (1) I almost always complete the task successfully
- (2) I finish the task, but I feel a bit uncomfortable without the instructor's presence
- (3) I rarely finish the task
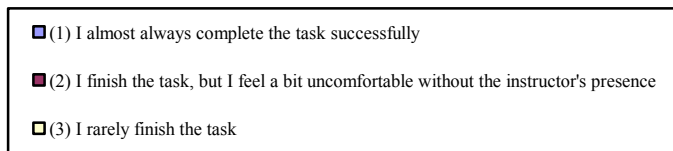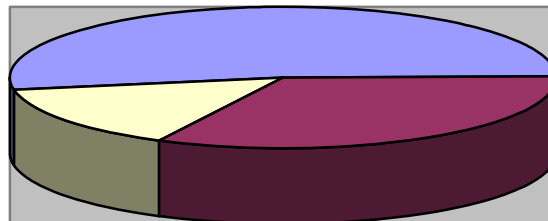
Discussion of the Findings

The social interaction and effects are categorised not as highly impacting factor. 52.46 % of the students   complete their task successfully

when they are asked to work individually, similarly 32.79 finishes the task but feel a bit uncomfortable without instructor presence. On the other hand 32.79% of the student correspondents feel that they rarely finish their task when they are left to work individually and do not socialize with their fellow colleges and the instructor. This finding indicate that socialization is required but not prevailing factor in distance education course, however our recommendation is to have some at least discussion forum and synchronous chat sessions in cases when face-to-face interaction is not used.

Organizational specifics-Question 11 (from the survey)
What are your preferences of Distance Education course?

- a self-paced distance education course completed independently;
- distance education course facilitated by an instructor who requires completed assignments and discussions with peers situated in the same physical location;
- a real-time distance education course conducted online with a facilitator and participants in different locations

Findings

Organisational specific
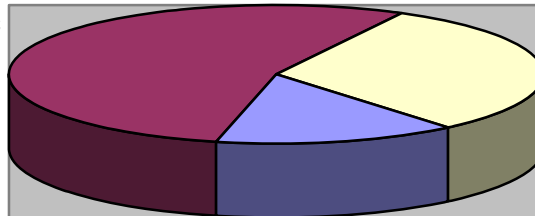
- ☐ (1) a self-paced distance education course completed independently
- ☐ (2) distance education course facilitated by an instructor who requires completed assignments and discussions with peers situated in the same physical location
- ☐ (3) a real-time distance education course conducted online with a facilitator and participants in different locations

Discussion of the Findings
The organizational specifics are categorised not as highly impacting factor. 14.75 % of the students prefer "a self-paced distance education course completed independently"; 54.10% of the student correspondents prefer "distance education course facilitated by an instructor who requires completed assignments and discussions with peers situated in the same physical location"; and 31.15% of the student respondents prefer "a real-time

distance education course conducted online with a facilitator and participants in different locations". These findings indicate that students prefer distance education courses with face-to-face instructor with discussions with their peers situated at the same location. We recommend using a video-conferencing in real time distance education courses-synchronous distance education.

E-content-Question 14 (from the survey)
If you could choose different formats for the same content which one do you think is best to convey knowledge and to learn from? Text? Animation? Graphich? Video or from the combination of all?

Findings
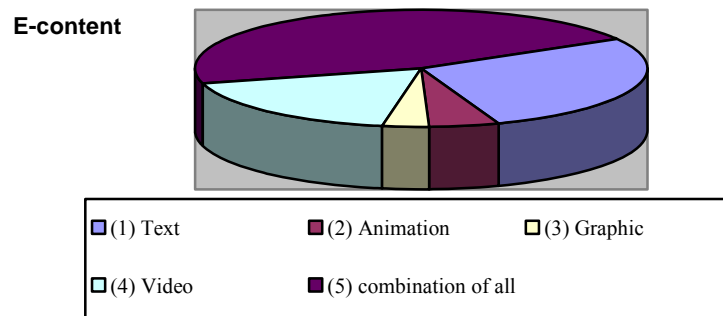
Discussion of the Findings
e-content factor is categorized as one of the highly impacting factor. 45.90 % of the students prefer "combination of all media"; 27.87% of the student correspondents prefer "text" format e-content; 18.03% of the student respondents prefer "video" format e-content, 04.92% of the students prefer "Animation" as preferred e-content format, and 03.28 % prefer "Graphics" as preferred e-content. These findings indicate that e-content provided as combination of all media with higher interactivity is highly preferred e-content that students learn best from. We recommend using a video-conferencing in real time distance education courses-synchronous distance education that also provide e-content in different media and combination of different formats that provide higher interactivity .

Concerns in Distance Education-Question 14 (from the survey)
Which of the following describes the reasons and main concerns of some of

your colleges that did not take a Distance Education (DE) course?

- Prefer the face-to-face classroom experience
- Concerned about the quality of (DE) courses
- Lack of technical equipment (computer & high speed connection)
- General apprehension
- No reflection of undertaken study and learning
- Other

Findings

Concerns in Distance Education

- ☐ (1) Prefer the face-to-face classroom experience
- ■ (2) Concerned about the quality of Distance Education (DE) courses
- ☐ (3) Lack of technical equipment
- ☐ (4) General apprehension
- ■ (5) No reflection of undertaken study and learning
- ☐ (6) Other
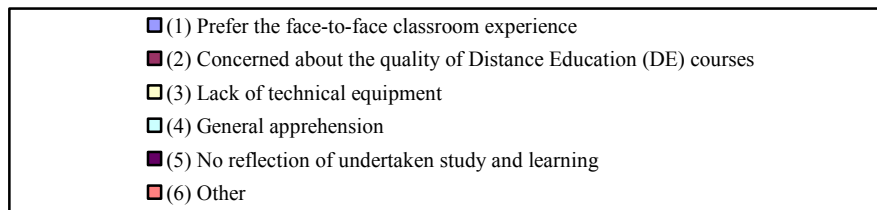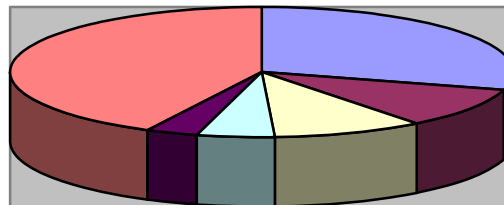
Discussion of the Findings

Concerns in distance education have been proposed as a result of focused groups and interviews with distance education specialists. 03.28 % of the students have defined "No reflection of undertaken study and learning" as the important concern and reason for not attending distance education courses; 04.92% of the student correspondents defined "General apprehension" as important reason; 9.84% of the student respondents defined "Concerned about the quality of (DE) courses" and "Lack of technical equipment (computer & high speed connection)" as reasons not in favour to distance education, 29.51% of the students defined "Prefer the face-to-face classroom experience" as important reason against distance education, and 42.62% of the respondent students found that they can not pin-point the exact concerns and reason against distance education courses.

504

Analyses of: Self Efficacy in Distance Learning-Question 16 (in the survey)

Please rate your self efficacy in distance education. How effective and efficient you are? Scaled in interval (Bad to Excellent)

Findings

Most of the respondents, 49.1% of them, have rated them self's as good their efficacy in distance learning. While 36.06% of them have rated them self's as very good. 14.75% of the students rated themselves as excellent and very satisfied with the distance education course. None of the participants selected the negative answers: bad and not good.
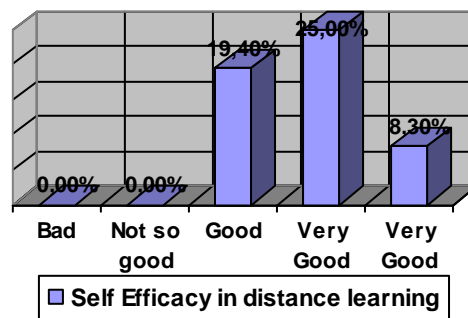
Discussion of the Findings

We have interpreted and concluded that students are satisfied with the distance education course and they consider that they are doing well, since the participants did not select any of the negative answers: bad and not good,. As Bandura (1997) defined it, self-efficacy refers to people beliefs about their capabilities whether or not they can perform successfully at designated levels using the distance learning environment. From the analyses of the findings it indicates that student achievement after their engagement in distance education environment varies. Overall all of the students are satisfied with their self-efficacy and have shown progress moving in the distance education environment from the traditional classroom. The reason for this will be analyzed and researched at the end doing a comparison analysis of al the findings.

CONCLUSIONS

According to the research results we acquired from the empirical study the conclusion is that distance education has specific requirements that need to

be fulfilled in order to have enhanced learning and successful distance learning.

Universities recently often make the mistake in assuming that providing distance education is a simple process of translating from one medium to the next: from classical classroom to Internet environment. However, the dangers in this approach are next. First, if the components of distance education are not understood or ignored then an inappropriate pedagogy and strategy may result. Second, putting the instructor directly from a classical classroom environment in distance education environment is most common mistake. Using the same teaching method and without training in pedagogical theories and instructional methods will result in that the instructor will not be very found of the new environment and he will pass this negative experience and influence to his students.

Thirdly, a lack of understanding of the properties of the Internet as a medium may cause unrealistic and unrealizable expectations. Thus the inappropriate strategy is matched to an unreliable medium expectation and the distance education program is unlikely to provide the desired educational environment for the student. This will result in failure and scepticism of the distance education as valid learning method. Based on the findings from the research study we have concluded that in order for the distance education course to be successful it has to include face-to-face interaction. We recommend using a synchronous – real time distance education courses using a video-conferencing or similar software tools like Skype, MSN messenger, and other available today as freeware video communication software.
The learners could be situated in different locations but the time of connection should be synchronous (at the same time) for all class participants. We also recommend that socialization is required but not prevailing factor in distance education course, however our recommendation is to have some at least discussion forum and synchronous chat sessions in cases when face-to-face interaction is not used. E-content provided as combination of all media with higher interactivity is highly preferred e-content that students learn best from.

As final overall recommendation we recommend using a video-conferencing in real time distance education courses-synchronous courses that will provide e-content in different media and combination of different formats with higher interactivity. Also in order to compensate for the body language in distance education according to Mehrabian (1981) recommendation is that

video-conferencing should be realized by a team of people that would follow the instructor in a larger plan then just frontally, and instead the video should provide view to instructor explaining in front of whiteboard with an optionally to switch to computer screen view–slides or other screen simulations. We share the opinion that using these active video-conferencing procedures proposed here as Distance Education throw video-conferencing-DEVC methodology would enhance distance learning and prove it as viable learning environment.

Will Universities be necessary in the future? Our conclusion to this question based on the literature review of the experts in the field as well as on the qualitative research and comparative analyses is that such a evolution path is not likely to happened since the University is and will be the driving force for education and it role according to Gerhard Casper is not likely to be automatized in such a level that it will not need human interaction and organization like those of an University. The research function of universities, ironically, will probably be a strong force holding them together unless that function is ultimately assumed by industry. We do not see industry assuming heavy enough responsibility in basic research any time in the future. However the impact of e-learning on Universities and education based on this research is that it will globalize education in a world wide framework and will increase the level of knowledge dramatically. The level of information and knowledge dissemination will also increase rapidly in such a level that it will become very hard to grasp its borders. How will this impact Universities-We think dramatically. Universities will offer higher level of knowledge and learning at higher sophistication level especially in the fields were emulation of real environments is crucial for learning like in medicine, astronomy, physics, but not so much in the field poetry, philosophy, pedagogy, literature and various fields will still need real life laboratories and real life experiments and hands on approach especially like in chemistry and medicine were simulation is simple not an option compared to real life examples and real laboratories. If employers were to abandon college and university degrees as marks of job readiness, then the world might learn to do without universities as issuers of credentials. Whole batteries of proficiency tests might become the means by which to demonstrate preparation for various careers. The e-learning recent developments bring the next questions to bear on universities.

- First, how will these changes affect the University, its roles and conduct?
- Second, how should universities react to these changes?

- Thirdly and more important will Universities be necessary in the future or there are going to be global e-learning distance certification centers?

The knowledge-based economy recently impacts education and it imposes new challenges and promises. Firstly, the knowledge-based economy as a prerequisite has education. Secondly, e-learning is the fundamental aspect of the education process since it is a very powerful tool for diffusing knowledge and information.

Regarding the first question to bear on Universities, our opinion is that the recent e-learning developments will highly affect the Universities mission and the way they conduct their teaching and research. We anticipate that the next logical step for the modern Universities will be to turn to distance education and e-learning solutions.

The reason for this at first will be the desire to be progressive and modern and especially since the other Universities will do so not taking this path will put them in position to stay behind of opportunities of globalization and the global market. Globalization-technology, economic exchange, political integration and culture require education systems to reduce inequalities and marginalization and prevent widening technology and knowledge gaps between countries, among other challenges; with the development of the ICT and rapid development of e-learning changes and impacts the Universities in general in a considerable manner.

Within the new virtual environment provided by e-learning the possibilities, accessibility and other options previously not possible in the traditional classroom now become available.
Some of the new options like the virtual reality, 3 dimensional (3D) multimedia, higher interactivity, are still under development and in its infant stage.

With the advancement of the ICT the new e-learning environment is thought to offer more possibilities and options in comparison to the traditional classroom especially in filling the gap previously left in the traditional classroom. The previous educational model in traditional classroom that was teacher oriented did not take into accounts the different models and types of learners. Huge group of learners that were visual learners were left behind in this model. Aldo some of the learners quite very advanced and with high IQ because of the unsuited educational model to their way of learning and

memorizing information they often shown low or unsatisfactory results. With the usage of e-learning environment these groups of learners are taken care by adopting the learning to this type of learners.

Regarding the second question the Universities should definitely change the way they conduct their teaching in a considerable manner to adjust to the new ways and circumstances. Universities should also work hard to improve accessibility and employability skills of their student and offerings as answer to this impact. Arguably the biggest opportunity in moving away from the confines of the classroom is the ability to redefine the notion of a course:

- What type of interaction is most beneficial to students?
- What will help them learn the best? Educators grapple with how to rethink education.

As John Maynard Keynes said, "The difficulty lies, not in the new ideas, but in escaping the old ones, which ramify, for those brought up as most of us have been, into every corner of our minds" (Keynes, 1997).Moving from traditional classroom into e-learning environment learning and teaching should adapt to the new circumstances and possibilities. If the teacher/instructor/lecturer is not aware of the learning theories and what makes good teaching principle the movement into e-learning environment where students depend on good content and interactivity much more this might be a serious issue. Most of the lecturers in the Universities are good experts in their fields but in academic environment being an expert in your field is not enough and certainly is not equal to being a good teacher too. The lecturer role changes in the new environment from a centered knowledge disseminator to learning guider. Because of this we are in an opinion that this fact is very crucial especially in e-learning environment were the learners depend more on content then on the lecturer. Regarding the third question will Universities be necessary in the future or there are going to be global distance certification centers?

The answer to this depends on another question: can e-learning reduplicate University roles, especially the role of knowledge assessment. Further, knowledge assessment is maybe the most important role that today in some form is possible and is actually realised on the web and the most known example is the Thompson Prometric certification centre. If this role of the University "knowledge assessment" could be entirely and satisfactorily realized and reproduced on-line than the distance certification centers is more likely to occur as alternatives of the Universities.

The Universities in the beginning could function as certification centers but with time there are most likely to be independent global certification centers that might be automated in testing and certification. Such an example is the "International distance education certification centre"- IDECC (2006) and Thomson Prometric. According to IDECC (2006) provides a service to distance education courses providers with its program to review course delivery in light of the established standards and to issue IDECC certification to those courses. If the future of education is the distance education and e-learning in general then most likely scenario to happen is to provide materials to learners and asses their knowledge in a fully automated process throw separated learning centers and certificate centers without any human intervene. If this scenario is most likely to happen then the Universities might become obsolete since there will be no need for it since it will not be cost effective and the second solution is more easily to manage and have control over to.

However without some sort of laboratory experience the scientific method is extremely difficult to learn Laboratory experience is therefore required by all universities from its undergraduates. Without a knowledgeable guide and direct experience with real art, appreciation of art and music is difficult. Nonetheless, learning a foreign language without speaking it is very hard to learn, similarly as learning any sport discipline without participating actively in it. These intangibles are certainly some of that can not be offered and captured on-line. This is the main reason we strongly believe that Universities should prevail and should remain as educational centers and certification centres at the same time.

The cost effectiveness and other privileges that the other solution provides and might look like better option at first sight should be carefully foreseen and try to avoid because of the later consequences it might arise.

Technology integration should be associated with constructivist teaching practices (Driscoll, 2000; Putnam & Borko, 2000). Within a constructivist framework, technology is used and integrated not to support largely teacher-led, lecture-dominated activities but student-cantered activities where students play an active role in their own learning process. Constructivist teachers commonly facilitate learning through student-cantered discussions, project-based and problem-based group activities, simulations, and students teaching other students. We propose the next strategy for the Universities to follow is to handle the next issues:

- improve quality, increasing access and reducing costs;
- change the role of faculty;
- change institutional leadership styles to become more adaptable and flexible.
- modularize education so that it can be used and re-used;
- develop e-learning competencies;

Universities make the assumption that providing distance education is a simple process of translating from one medium to the next: the current popular medium being the Internet.

However, the danger in this approach is two fold. First, if the components of distance education are ill understood then an inappropriate pedagogy and strategy may result. Second, a lack of understanding of the properties of the Internet as a medium may cause unrealistic and unrealizable expectations. Thus the inappropriate strategy is matched to an unreliable medium expectation and the distance education programme is unlikely to provide the desired educational environment for the student.

At the same time, there is considerable debate about whether online courses are effective and whether online degrees are valued. Universities should prevail against the global certification centers and should remain as educational centers and certification centers at the same time.

The cost effectiveness and other privileges that the other solution provides and might look like better option at first sight should be carefully foreseen and try to avoid because of the later consequences it might arise.

One such consequence is that it could bring undesired lower quality of education and learning limited and focused only in recognition suited to the market needs and not to scientific and progressive learning as such. The emulation and spontaneity generated by physical presence and social groupings often remain crucial.

Likewise, face-to-face exchanges are important when they enable other forms of sensory perception to be stimulated apart from these used within the framework of electronic interaction. However, the influence of distance and time is waning now that the technological capacity is available for knowledge-sharing, remote access and teamwork. As an added benefit of these analyses and proposed guidelines, the SEE Universities will:

- Improve and stream the path of the evolution of education and the life cycle
- Anticipate and foresee this impact in order to avoid the undesired and possible destruction of the education quality by limiting it and not taking into account the learning theories and the quality of the life long learning and knowledge construction y has been able to create a seamless university wide e-learning support content by using the experiences drawn from these analyses and experiences gained from these courses.

Analysis led to a series of recommendations for changes to methods and procedures currently employed in creating distance education courses in the University framework. Those involved in analyses gained a substantial increase in understanding of the overall goals of the process and attitudinal changes occurred.

A common understanding of the overall e-learning process and the role of the University played in its successful completion lead to increased goal congruence. The university has recognized the need to streamline its instructional design process to ensure that courses delivered through distance education in the future would share findings from this research.

RECOMMENDATIONS FOR eLEARNING STRATEGY

Based on the insights of the research study recommended and proposed is a strategy for implementing E-Learning at South East Europe. The developed strategy takes into account the Universities current mission in achieving a so-called borderless education within the regional Balkans context, but also in a wider European and global context. A number of issues related to such a specific context of the University, such as its multilingual and multicultural environment influenced the developed strategy and its implementation plan.The main principle of such a strategy is to support the university's mission of borderless education by providing the widest possible access to national and regional excellence in learning and teaching by means of the current and novel technology.

The identified goals can be classified into three groups: organizational-social, pedagogical and technological goals. The regional multilingual and multicultural geographic specifics are an important factor driving the decision how to implement an E-Learning strategy.

The complexities associated with multilingual and multicultural geography specifics opens up a new dimension of teaching/training issues in providing borderless education.

Implementing such an ambitious and integrative approach to E-Learning requires an action plan that comprises the following steps:

- E-learning Indicators measurement and evaluation of the learner audience.
- Compiling a project plan and budget for the E-Learning curriculum and tools.
- Summarizing the needs, analyzing the results and presenting them to the University's management.
- Deciding upon the exact E-Learning tools, techniques and methodologies,
- Developing an implementation plan of integration of E-Learning tools into the existing technological infrastructure of the University.
- Implementation, usability testing and overall evaluation.
- The developed E-Learning strategy will lead to three important outcomes:
- E-Learning tailored to regional multilingual and multicultural specifics.
- Contribution in emphasizing the role of pedagogy over the technology and in this way encouraging development of the pedagogical aspects of E-Learning.
- Contribution in developing multilingual and multicultural content and giving the same borderless educational opportunities to all learners regardless of their ethnicity, language, faith, geographic location and cultural specifics.

The University should aim to break down the borders and limitations in education and provide convenient E-Learning opportunities that enhance teaching/training and personal prospects, particularly for those learners within the region wherever they may be living and working.

In this way, the SEEU can strive for transformation of education and training processes by developing and renewing education pedagogically in the spirit of the Bologna process defined by the European Commission.

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CHAPTER-22

eLEARNING IN MOLDOVA
E-Learning and ICT Development
in Education In The Republic of Moldova

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ABSTRACT

This chapter is devoted to the existing educational system in one of the 15 former Soviet republics: Moldavian SSR, nowadays Republic of Moldova that has gained its independence in 1991. The legal foundation for the present educational system in Moldova was laid in 1995. Since then the Education Law has undergone many versions. Its basis, educational structure, infrastructure and levels remained, however, unchanged. This is being confirmed by the existing structure of the Ministry of Education, as well as by student, professorial and teaching contingent. More than 4 years ago a reform of the Moldavian educational system has started. It was oriented to European values and aimed to the innovational training and teaching methods adoption. A proper I&CT integration in the technological teaching process, however, did not take place yet. The implementation of the new forms of the distance learning based on e-Learning is experiencing an evident slowdown. This chapter discusses the penetration and application of ICT in Moldova in whole and in educational institutions, as well as some problems related to education informatization.

INTRODUCTION

Moldova's territory was inhabited in ancient times by Dacians. Due to its strategic location on a route between Asia and Europe, Moldova has suffered from several invasions, including those of the Kievan Rus' and the Mongols.

During the Middle Ages the territory of Republic of Moldova (including most of present-day Moldova but also including districts to the north and south, known as Northern Bukovina and Budjak) formed the eastern part of the principality of Moldavia (which, like the present-day republic, was known in Romanian as "Moldova"). The principality became tributary to the Ottoman Empire during 16th century. According to the Treaty of Bucharest in 1812, the territory passed to Russia together with Budjak (Southern Bessarabia).

At first, the Russians used the name "Guberniya of Moldova and Bessarabia", but later called it simply Bessarabia. The western part of Moldavia remained an autonomous principality and united with Walachia to form the Old Kingdom of Romania in 1859.Following the Russian Revolution of 1917, Bessarabia proclaimed independence from Russia in 1918, and united with the Kingdom of Romania the same year. In accordance with the June 1940 Ribbentrop-Molotov Pact with Nazi Germany, the Soviet Union forced Romania to evacuate its administration from Bessarabia and Northern Bukovine and immediately annexed these territories. Although Soviet troops were forced out in 1941 by the invasion of Axis forces, the Soviet Union re-occupied and annexed the area in August 1944.

Soviet rule brought a harsh de-nationalization policy. The southern and northern parts (which had significant Slavic and Turkic minorities) were transferred to Ukraine. At the same time, Transnistria (where, at that time, ethnic Romanians were the largest ethnic group) was joined with the remaining land to form the Moldavian Soviet Socialist Republic, identical in territory to present-day Moldova. Under Stalin, ethnic Russians and Ukrainians were encouraged to immigrate into the new country, especially into urbanized areas, while large numbers of ethnic Romanians were deported to Siberia and Kazakhstan. The overall result was the destruction of Romanian elites and middle-classes, and their replacement with Soviet (mostly Slavic) elements.After the Soviet Union occupied the region of Bessarabia during World War II, the Soviet government began a campaign to promote a Moldovan ethnic identity, different from the one of the Romanians, based on a theory developed during the existence of the Moldovan SSR. The Soviet official policy also stated that Romanian and Moldovan were two different languages and Moldovan was written in Cyrillic alphabet, as opposed to Romanian, which was written in Latin alphabet.

The part of Moldova east of the Dniestr River, Transnistria-which is more heavily industrialized and is populated by a larger proportion of ethnic Russians and Ukrainians-claimed independence in 1990, fearing the rise of nationalism in Moldova and the country's expected unification with Romania. This caused a brief military conflict between Moldova and Transnistria. Russian and Ukrainian forces intervened on the Transnistrian side, and remain there. Negotiations between the Transnistrian and Moldovan leaders have been going on under the mediation of European Union, OSCE, USA, Russia and Ukraine. Despite expectations of the Popular Front, Moldova did not unite with Romania in 1991. In the early 1990s, the future of Moldova was a source of tension in Romania's relations with Russia. Russian President Boris Yeltsin's government did not want to see one of the former Soviet republics on Russia's frontier joined to another country. A March 1994 referendum saw an overwhelming majority of voters favoring continued independence.

COUNTRY

Republic of Moldova is a relatively small country located Eastern Europe, northeast of Romania and west of Ukraine. Is a landlocked country, without a coastline? Border countries: Romania 450 km, Ukraine 939 km. Geographic coordinates: 47 00 N, 29 00 E. Total are is 33,843 sq km, land: 33,371 sq km, water: 472 sq km. Total population is around 4,500,500 (July 2006 est.). Major cities and their population are Chişinău (716,700), Tiraspol (164,900), Tighina (144,400), Bălți (127,600) Ungheni (32,700), Soroca (28,400) and Orhei (25,700). Ethnic groups in Moldova and their ditrinbutions are Moldovan/Romanian 78.2%, Ukrainian 8.4%, Russian 5.8%, Gagauz 4.4%, Bulgarian 1.9%, other 1.3% (2004 census). Different religions are as: Eastern Orthodox 98%, Jewish 1.5%, Baptist and other 0.5% (2000).

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Economy of Moldova remains one of the poorest countries in Europe despite recent progress from its small economic base. It enjoys a favorable climate and good farmland but has no major mineral deposits. As a result, the economy depends heavily on agriculture, featuring fruits, vegetables, wine, and tobacco. Moldova must import almost all of its energy supplies. Energy shortages contributed to sharp production declines after the breakup of the Soviet Union in December 1991. As part of an ambitious reform effort after independence, Moldova introduced a convertible currency, freed prices, stopped issuing preferential credits to state enterprises, backed steady land privatization, removed export controls, and freed interest rates. The government entered into agreements with the World Bank and the IMF to promote growth and reduce poverty. The economy returned to positive growth in 2000, and has remained at or above 6% every year since. Further reforms will come slowly because of strong political forces backing government controls. The economy remains vulnerable to higher fuel prices, poor agricultural weather, and the scepticism of foreign investors.

EDUCATION SYSTEM IN THE REPUBLIC OF MOLDOVA

In The Republic of Moldova (RM) the normative act that determines the state's policy regarding education and regulates the organization and functioning of the educational system is the Education Law no 547 from 21.07.95, the Ministry of Education and Youth (EYM) being responsible of it. The education system is organized on levels and stages and it has the following structure:

    I.   Pre-school education
    II.   Primary education
    III.   Secondary education
        1. Generally secondary education
           a. gymnasium education
           b. high school education/general culture education
        2. Vocational secondary education
    IV.   Medium specialized education (college)
    V.   Higher university education
    VI.   Post university education

The lists of every educational institution in the subordinated to the Ministry of Education and Youth on levels, curricula, accreditation results etc can be consulted on the official website EYM. (http://www.edu.md retrieved on 11.10.2009).

Figure 2.
Education system in Republic of Moldova
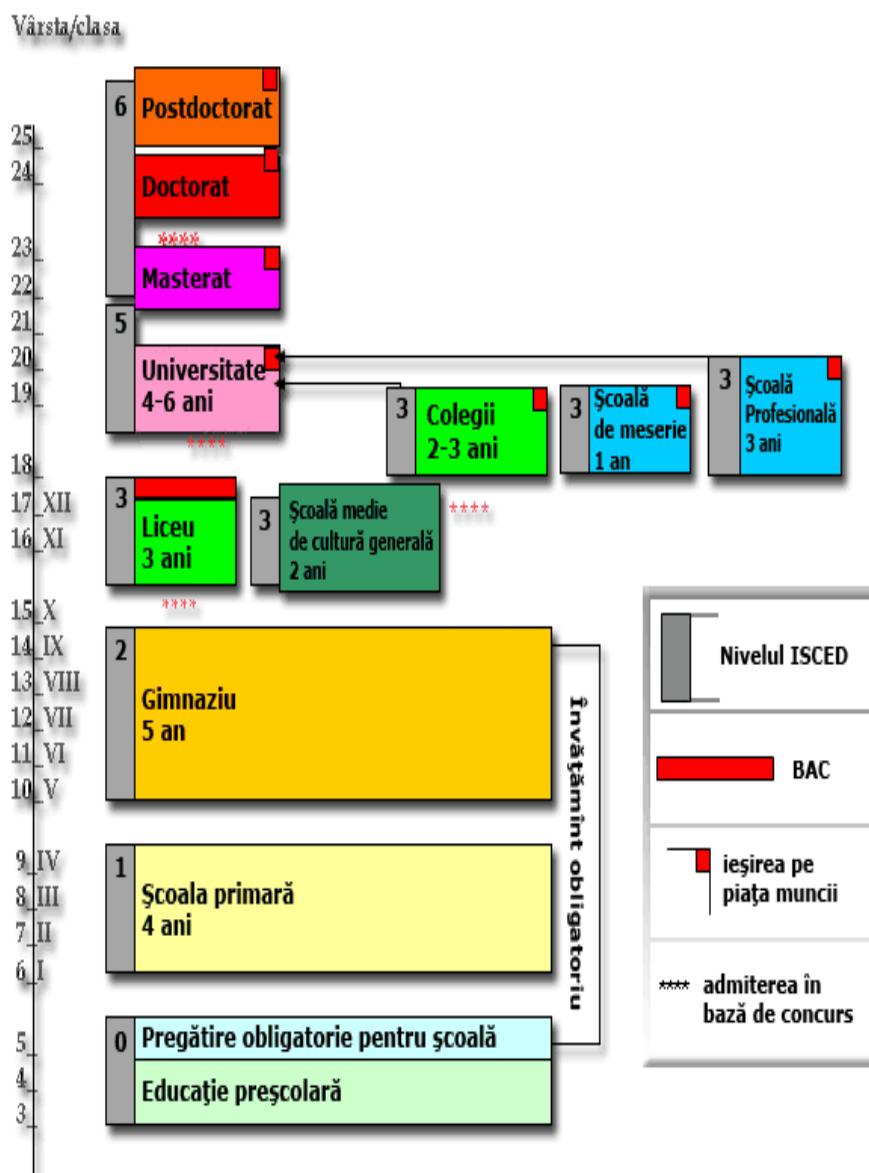
Source: *http://www.edu.md/?lng=ro&MenuItem=3&SubMenu0=1* retrieved on
12.11.2009

Table 1.
Higher education institutions 2004-2008
(Adapted from the source: BNS:
http://www.statistica.md retrieved 10.11.2009)

	2004/ 2005	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008
Higher education institutions	35	35	35	31	31
Students	114552	114552	126132	127997	122939
Day education	74865	74865	79871	81201	79490
Education by correspondence	39687	39687	46261	46796	43449
Students per 10000 inhabitants	318	318	351	357	344

Approximately 9% of the total number of students undertakes pre-Bologna superior studies, taking in consideration the adhering to the Bologna process from 2005, with the first series of graduates from the first cycle in 2008 and from the second cycle in 2010.

The teching staff/personnel from the educational institutions in the year of studies 2008/09 was of 6415 (base personnel) compared to 6447 persons in 2007/08.

The women's share from the total of the didactic personnel was of 54,0%. In the superior education institutions the personnel with scientific degree was of 2704 persons (42,2% from the total number of persons), of which 2301 doctors of science and 403 habilitated doctors.

Besides, the auxiliary didactic personnel, whose structure is made of: laboratory assistants, technicians and librarians, were of 2190 persons. The medium proportion teaching staff: students for the year of study 2007/08 were of 1:19, being on the decrease.

In the year of studies 2008/09, the existing didactic personnel in colleges was of 2438 teaching staff, of which 91, 7% had full time job.

The didactic and instruction activity was provided by 269 people with management positions, 2027 teachers, 43 foremen–instructors, 38 methodologists, 56 social pedagogues and 5 psychologists.

The women's share from the total number of personnel was of 67, 6%.

Table 2.
Colleges between 2003-2008

	2002/ 2003	2003/ 2004	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008
Colleges	63	60	56	51	49	49
Pupils	15207	18727	23618	27060	30223	31307
Day education	13625	16958	22048	25538	28908	30339
Education by correspondence	1582	1769	1570	1522	1315	968
Pupils per 10000 inhabitants	42	52	65	75	84	87
Teaching staff	1691	1762	1898	1972	1999	1967

(Adapted by the source: BNS: http://www.statistica.md retrieved on 11.11.2009)

The Secondary Vocational Education System
The didactic personnel at the beginning of the year of study 2008/09 was ensured by 2344 teaching staff (in decrease with 4,2% compared to the precedent year of study), of which 227 management personnel, 852 teachers, 1137 foremen-instructors and instructors, 126 social pedagogues and 2 psychologists.

The auxiliary didactic personnel counted 186 persons. The women's share from the total of persons was of 55,3%. The number of pupils to a teacher was of 10.

The number of institutions and students to be seen in Table 3, to which must be added two vocational high schools open in the year of study 2007/2008 with a number of 1875 pupils (retrieved 11.11.2009 details are obtain from http://www.statistica.md/newsview.php?l=ro&idc= 168&id=2474).

Table 3.
Secondary education institutions in 2003-2008

	2003/ 2004	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008
Institutions of secondary vocational education	83	81	78	78	75
Schools of trades	29	28	26	26	23
Vocational schools	54	53	52	52	50
Pupils	22757	22696	25005	23656	24506
Schools of trades	4825	4590	4209	3962	3284
Vocational schools	17932	18106	20796	19694	19347
Pupils per 10000 inhabitants	63	63	70	66	68

(Adapted by the source: BNS: http://www.statistica.md retrieved 11.11.2009*)*

The number of schools, gymnasiums and high schools (table 4) as a result of the reorganization process has decreased from 2004 until now with 42 units.

Three quarters from the total number of school were in the rural area. The schools, gymnasiums and high schools that represent the public property have the main share-98,6%.

The private institutions consist in 22 educational institutions, including 21 high schools and one gymnasium, which are placed only in the urban area.

From the total number of pupils enrolled in the primary and secondary general education 59,4% -were studying in the rural area.

The share of pupils in the primary and secondary education is major in the rural area, over 63%, while the share of pupils in the high school education is higher in the urban area 64,8%.

Table 4.

Schools, gymnasiums and high schools, state and private between 2003-2008

	2003/ 2004	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008
Number of institutions-total	1583	1577	1558	1546	1541
Day schools	1576	1570	1551	1539	1534
Primary schools	119	116	104	96	94
Gymnasiums	669	667	664	668	678
Lyceums	284	369	387	442	471
Secondary schools	466	380	359	296	254
Schools for children with development deficiencies	38	38	37	37	37
Evening schools	7	7	7	7	7
Number of pupils – total, thousands	580,5	548,5	519,0	493,5	462,8
Number of pupils per 10000 inhabitants	1607	1522	1438	1372	1289
Teaching staff – total, thousands	42,7	41,1	41,0	40,1	38,7

(Adapted by the source: BNS: http://www.statistica.m retrieved 11.11.2009)

In accordance to the normative documents the EYM is responsible with making and promoting of the politics in all these fields, including the children rights, youth politics, promoting international relations in the education field, the integration of the education system from the RM in the European educational system, the state's linguistic politics, the integration of the information and communication technologies in education, the initial training and continuous perfecting of the teaching staff and of the management staff within the educational system, scientific research in the subordinate superior educational and research institutions, the evaluation and accreditation of the educational institutions.

The present situation of the Ministry of Education and Youth with limited human and financial resources is a problematic one, the educational system being in a profound crisis, caused firstly by the insufficient investments and

by the insignificant allocations from the state's budget. In the school and high school from the RM can be found a grave insufficiency of pedagogical staff, the salaries of the pedagogues being a lot under the consumption needs, the young are not retained, especially in schools and high schools.

At the same time, there is a continuous series of problems connected to the legislative base. Since 2005 the Republic of Moldova has adhered to the Process of Bologna, but there still isn't an adequate legislative and normative frame. *"The autochthonous educational system, instead of being open and flexible is closing and becomes rigid, remains amorphous and in a unfinished reform"*. (Toderas, 2008)

The Educational Code adopted is obviously *oriented towards pseudo reform* and is very much criticised by the specialists. But the adjustment of the legislation is important especially in the context of the RM's orientation towards the European Union (EU), to the application of the EU's standards regarding the quality of education and organizational structures.

In the modern informational societies based on knowledge, in the context of fast erosion of knowledge, new models of training and instruction are imposing, that get an essential role both in the individuals' manifestation as a unique personality, and in the longstanding social development. The most of the developed countries around the world (for example: the G8 Committee [Okinawa], the countries of the European Union) as well as those that are in the process of development, in the process of adhering to the European Union plead for e-Learning. The Republic of Moldova has accepted this desideratum as well, by adopting *"The National Strategy of edification of the informational Society "The Electronic Moldova"* (Strategy) *and the Plan of actions "The Electronic Moldova""* (PAME). The nowadays society, mainly based on changing information, generates a great diversity of it, and the way of structuring this knowledge, determines the need *of life long learning.*

This cause-effect tandem produces a major impact on the individual, as the knowledge assimilation at his level, according to his personal compulsion and in the rhythm of the changes can no longer be realized efficiently by traditional teaching-learning methods. The phenomenon can only be solved at the level of organizational and structural modifications in the conditions of unified politics and mutual advantageous collaboration both

at national and international levels. Among the main social directions of the strategy are being stated:

- The institutionalization of the methods and techniques offered by TIC within the whole educational system, so it can offer access to continuous learning (The Strategy p12);
- The transition from a learning process based on the memorization of knowledge to one that ensures the development of the abilities of their acquisition (The Strategy p13);
- The founding within the Ministry of Education of the National Centre of informational and educational communication technologies, that will ensure the scientific – methodical coordination, the elaboration and implementation of the public politics, the training and perfection of the staff from the TIC field within the limitation of the existing institutional network (PAME, pt 26);
- The founding within the superior and medium specialized education institutions, that don't have specialized departments, of the methodical sections for the based assisted learning and long distance learning;
- The implementation of the pilot projects in the field of based assisted learning and long distance learning (PAME PT 27);
- The founding of the educational management system;
- The accomplishment of the standards anticipated by ECDL (European Driving Licence) for every graduate of the secondary general, medium specialized and higher educational institutions (The Strategy) and others.

The strategic objective of the higher education is the integration in the Unique European Area of the higher education and the active participation to its construction. In order to make this desideratum in May 2005, at Bergen, Moldova has adhered to the Process of Bologna. The HEIs create their own internal quality management systems that have as purpose the organization of these processes in accordance with the national standards and the requests of the external evaluation systems. In this context, from 2005 until now there have carried out some reforms, including:

- The organization of the higher education on cycles starting with 1st of September 2005 and the elaboration of the new study programs: superior degree studies, with a duration of 3-4 years and superior master studies with a duration of 1-2 years;

- The elaboration of an educational law code in order to make it compatible with the European rigours and requests;
- The elaboration and the implementation of the temporary frame – plan for cycle I (superior degree studies);
- The elaboration of the new classifying list of the fields of professional training and of the specializations for the first cycle;
- The elaboration of the implementation guide of the national study credit system;
- The institutionalization of the study credits, type ECTS, in every superior education institutions;
- The implementation of the Supplement to the diploma according to *the unique European model.*

At the present moment, in conformity to the laws, at the end of the superior education cycle the students get tow types of diploma:

- The diploma for superior studies for the graduates that have ended the whole Plan of studies and that have sustained the degree exams, without the degree thesis;
- The diploma for the graduates that have ended the Plan of studies, have sustained the degree exams and the degree thesis.

But the main conclusion of the educational system's reform is that an important part of the strategic declarations have remained only declarations, and the reformation is still needed.

E-LEARNING AND I&CT FOR EDUCATION

In the new era of learning, the E-Learning has become an important strategy for the most of the educational institutions. I&CT have become indispensable to all the didactic activities, centred on the pupil, the student. The Internet and the Web have open new horizons for education, learning and long life distance learning, offering access to the most recent researches and to the knowledge global cyberspace.

At the same time, the Internet is both the environment for distributing the materials and the main communication channel between the involved actors in the educational processes. The electronic education (e-Learning) is represented by the interaction between the teaching/learning process and the informational technologies I&CT *(Information and Communication Technology).*

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The educational digital materials have become a veritable bibliographical source for lesson presentations or for doing homework. Lately the teachers are more and more trained in special preparation modules in the field of I&CT. More than a new type of education and distance training, an e-Learning system is at the same time a new business solution, a success option for the institutions and centres that offer these services.

The main objectives of e-Learning
- To support the isolated persons, to value their whole creative potential and to ensure the premises for a fulfilled life;
- To reduce the gaps between individuals or groups of individuals;
- To ensure the concordance between the companies requests for professionals and the offer of the labour;
- Wider access to education.

The main advantages of the e-Learning;
- The capacity to provide a big volume of information;
- The possibility of real and complete individualization of the learning process;
- The making of some communication channels at big distances and the possibility to ask for support from experts from different corners of the world;
- Intercultural educational cooperation;
- I&CT have became indispensable to every didactic activity, focused on student;
- The Internet and the Web.

The teacher Tom Brown from the Pretoria University made available to us a suggestive presentation for the clear understanding of the learning alternatives in the modern informational societies based on knowledge (Figure 2.). The environment for the process of e-/electronic, i-/IT, m-/mobile, d-/distance, on-line/learning is a virtual environment type virtual class/school/university. T

he m-Learning/mobile learning supposes obtaining necessary knowledge at the right time, wherever you might be, even on the move. It makes that the users of the knowledge (knowledgist) to be correctly oriented and to correctly choose the right learning alternatives: end-to-end, back-to-back, door-to-door, one-to-one, face-to-face, m-Learning being the advanced e-learning forms that allows the learning in state of TM-Total Mobility.

Figure 2.
Alternative and complementary ways of learning
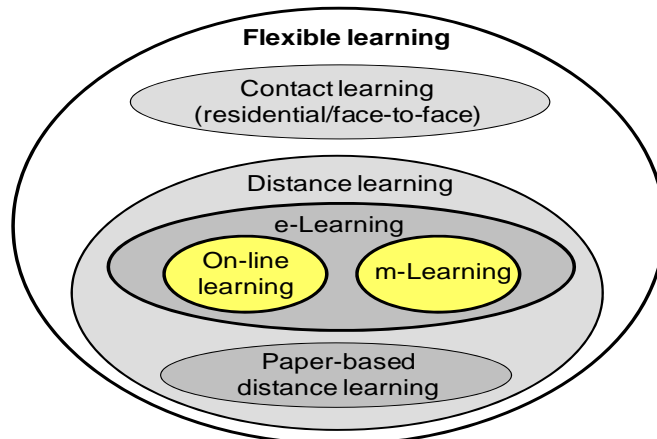
(Source© 2004 Tom Brown)

The professor Ion Gh. Rosca, the recently named Rector of the Studies Academy from Bucharest (Rosca 2002) specifies the semantic area of the e-Learning concept, the multitude of valences of the term e-Learning, as being a generic term, an umbrella term that designates multiple educational situations in which is being used in a meaningful way the information and communication technology (eTeaching, eTesting, eTraining, eEducation, , Web, Internet based assisted/mediated teaching – instructing – learning – training figure 3.).

Figure 3.
Semantic representation of the e-Learning concept

(adapted based on ''(Rosca I. Gh. and Zamfir G., 2002)

In the context of these statements on ways of learning (image 2) and on the semantic area of the e-Learning concept (image 3), in the Republic of Moldova at national level there are the necessary premises and infrastructure for e-Learning *practically in every university education institution*, in many colleges and in over 60 schools.

But the e-Learning *is still being weakly used* in the learning and control technologic processes. One of the main obstacles is the weak training of the teaching staff in order to integrate I&CT in education, their weak co-interest in the development of the digital educational resources, the fear of diminishing the teacher's role etc.

Contrary to the appearances, the teacher's role in such an educational environment amplifies. Thus, if in the classical learning process, the didactic skills manifest through selecting some adequate to the content and to the students teaching methods, in the e-Learning process the teacher should propose a digital content that compensates the lack of verbal explanations.

Moreover, it is difficult to maintain the interest of the students in a virtual educational environment, where it doesn't matter either the teacher's personality or the quality of good orator or the capacity to capture the attention by his explanations. Another obstacle is *the lack of an unique reference frame* at national level often at institutional level, which allows the coexistence of the bad courses besides the good ones, putting the innovative teachers in unfavourable conditions.

In conclusion, following the model of IT development, the computer based assisted learning, the computers and Internet networks in the Republic of Moldova is recognized as a vital factor in the edification of the informational society and in the formation of an informational culture, stipulated in the Strategy. The computerization of the all levels education as main task of the modern informational societies anticipates *the institutionalization of the methods and of the techniques offered by I&CT in the education system*, so it offers access to continuous and quality training. But, as a big regret, the mechanism for implementing is missing; the talking is different from the facts and the reforms of the educational system are much below the real necessities. The accomplishment of the anticipations of the Strategy needs colossal human, material and financial efforts. To illustrate this is sufficient to make an approximate calculation of the financial resources needed to accomplish just one of the strategic anticipations –the standards for ECDL for every graduate from the superior education institutions.

This results from the number of graduates, which is of 25 thousand every year, and from the minimum cost (only for examination) of ECDL–start of about 600 lei and ECDL–complete 715 lei the improvised costs would be over 15-18 million lei, which is very high for the budget of the higher education institutions (for example, this would mean two annual budgets of

USM). Even greater are the efforts in order to acquire an informational culture by the teachers and adults, for whom the cost of an exam is about 25-30% higher, it needs supplementary training by the courses. These costs tend to grow in the future, as in the informational society every young man will have to undertake university courses, and the most part of the adults – to self perfect continuously throughout their life.

DISTANCE LEARNING

In short about the new way of open distance learning (Open Distance Learning, ODL) mediated by I&CT and used more and more, can be characterized as *study from anywhere, anytime is convenient and anything you want.* Any student works and learns in his own rhythm, when it is convenient for him, anywhere he would be, anything he wants, according to his own needs, by the 4As principle: *Anyone, Anywhere, Anytime, Anything.* The distance learning develops self-motivation, offers an independent approach of the long life continuous perfecting for everyone, it allows that the process of initial and post university training matches the complaints of personal life, widens the access to education.

Obviously, in the process of distance self learning difficult questions appear for the students. But now they have many possibilities of making contact and communicate with the teachers, tutors and colleagues: on-line by teleconferences or programmed consultations, by phone, by e-mail, direct contact through residential school and/or weekend. Beside this, in the case that the course is being offered on campus, the distance learning students can participate too, face-to-face anytime they need, and every time it suits them. The emphasis on some definitive aspects of DL/ODL (Bragaru et Al: DL, 2008) allow a better understanding of the position, role and applicability of the new form of training:

- DL is when a pupil/student and a teacher are separated by a certain physical distance and the interaction between them takes place by an audio, video technology, network or mass-media, supplemented by face-to face communication;
- DL, usually does not take place under the continuous surveillance of the teaching staff in the classroom, but it benefits of support, guiding and planning from an institution;
- DL can take place in a synchronous way (TV, virtual classes) and asynchronous-anytime mediated by network;

ODL is a sort of DL that offers the four big openings: the access, the programme, the organization and the student's management, the duration and flexible timetable.

- The term of open learning suggests the idea that the students can enrol to classes or programmes without constraints;
- ODL individualizes itself by its open character, high flexibility, its own rhythm, the place of study, the resources and informational technologies used, the methodology of study, the evaluation methods and the system of quality ensuring;
- ODL is in general informal, often free, addressed to wide masses of users;
- ODL does not mean just the use of digital training resources or denial of printed materials. ODL is called in to improve the classical training methods and materials.

Among the benefices of DL/ODL for the society we could mention:

- **Flexible and accessible** efficient own rhythm of study, from anywhere (from home, from work…) and anytime; it allows the personification of learning; becomes more accessible (for anyone);
- **Economical:** it reduces the costs of training, including the taxes of training, of transportation, of accommodation etc;
- **Practical:** favours the continuous forming, without interrupting the activity, extends the young men chances to access the university and post university education;
- **Innovative** is centred on the student, but it possesses the benefits of teacher based assisted training; reduces the difficulties of programming the classrooms and synchronization;
- **Increases the learning performance** studying without the teacher reduces stress by 50%;
- **Standardizes the quantity of knowledge** tests that ensure an uniform level of knowledge, a formative, continuous, summative evaluation a more objective, more economical one; reports on the training plan on the whole and individually.

iCEM–the main resource for IDD, term introduced by the authors (see Bragaru, iCEM-2009). iCEM–Computer-based Methodical Educational Complex or Electronic (eCEM)–a set of materials, interconnected documents in digital form, which reflects the educational purpose, the content, the

teaching methods, consecutively material and the afferent training, evaluation and control tools for a concrete subject.

A type of electronic Case of the student is on a subject, with digital study material. All the essential learning content and the distance learning tools can be found within this iCEM.

It includes an interactive site with subject's presentations and evaluations, a study/activity guide per weeks, supplementary topics connected to readings or laboratory textbooks, according to the necessities, communication instruments and resources to support the learning and collaboration with other students.

In certain cases iCEM can be delivered on DVDs/CDs either with autonomous activities or with evaluations in real time on an institutional platform. As equivalent terms can be taken into consideration the terms of electronic course, digital course (e-courses):

- For distance asynchronous learning (Internet mediated);
- For synchronous learning in real classes and/or virtual classes;
- For spreading by publishing/writing it on CD/DVD.

This is the essence of distance learning and for RM
In the case of Moldova, NOT THE GEOGRAPHICAL DISTANCE is the most important for ODL (actually in the countries with big areas the distance problem is solved by filial networks).

The true reason for DL is *the own rhythm of study, the liberalization of the program according to own necessities and compulsions.* According to the teachers and students from Charles Sturt University evaluations, *the main distance learning provider in Australia,* (http://www.csu.edu.au retrieved on 13.11.2009), these are the main advantages for the distance learning students compared to classical learning students. At the same time the distance can be a criterion in the favour of ODL for about a million of inhabitants of Moldova, scattered by the economical crisis throughout the whole globe.

The Open Distance Learning Based On I&CT
Doesn't Take Roots Yet In Moldova.
The classical forms of study with low attendance based on the use of printed materials with postal distribution or collected in person by the students at the study institutions are being widely used.

In Moldova there were launched a series of particular initiatives of implementing the modern form of ODL in university and post university study in a series of institutions of higher education from RM as USM, ASEM, UTM,. ULIM, UAM, as well as in the Institute of Continuous Learning/ICL (post university studies, recycling etc). But at this moment there is neither open learning, non formal, nor distance formal learning, with graduation, master degree or post university degree. There are no official graduates of the autochthonous institutions at this form of ODL. All these are in an incipient state, even though in essence they are the same innovative forms of learning, widely used in developed countries, and which have the future ahead of them. Let's hope they will be appropriate for Moldova, too. The main brake factor is the fact that the new open educative environments impose substantial mutations within the education system: new competences from teaching staff, new study materials, innovative methods of training/teaching/evaluation. At the same time the information of the population about this form of learning is missing, being present only on the sites of some institutions and not in the most visible places.

E-Learning/Distance Learning technologies
- **Case-technologies-**the didactic – methodical materials are supplemented in a special complete (from the English word Case) are being transmitted to the student in order to be taught by its own (with periodical advice from the tutors). If initially these had only been printed, now the modern Cases are completed with means and multimedia and hypermedia systems, delivered on CDs/DVDs.
- **Radio and TV-technologies-**are based on radio or TV lessons with consultations from the tutors, including interactive technologies *radio, video by request.*
- **Network technologies-**uses Internet / Intranet / Extranet technologies for ensuring the student with didactic -methodical materials and interactive tutor, which intensifies the learning process**.** At their turn, these are materialized in:

  - Hypertext author systems (Web)
  - Learning platforms based on Web and property systems
  - Collaborative technologies (e-mail, news groups, postal lists, chat, forum, blog and other systems of video communications)
  - Virtual Reality Systems
  - Audio / video author classes delivered by network in synchronous / asynchronous way, including CDs/DVDs

Table 5
Use of Internet in the Republic of Moldova and neighbour countries

Country	Users	% population in the world	Penetration, % population	Dynamics 2000-2008
Romania	12.000.000	3,1	53,9	1.400,0 %
Moldova	700.000	0,2	16,2	2.700,0 %
Ukraine	10.000.000	2,6	21,7	4.900,0 %
Russia	32.700.000	8,5	23,2	954,8 %

(Adapted by the source: InterenetWorld Stats,
http://www.internetworldstats.com, retrieved of June 2009

In reality the penetration rate can be higher if we take into account the population's migration and that a lot of the population lives abroad. According to a sociologic study carried out in 2007 the penetration rate was evaluated to a level of about 24%. At the end of September 2009 the population's penetration with landline was of 31,7% (1.132.084 numbers). The services quota (and incomes) belongs to the state company Moldtelecom (about 98%).

Figure 4.
The evolution of the subscribers' number at fixed points, thousands
(Source: ANRCETI, Statistics http://www.anrti.md retrieved on 12.11.2009/)

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	Broadband subscribers		xDSL subscribers
	Cable TV subscribers		FTTB/LAN subscribers
	abonați prin cablu TV		abonați prin FTTB/LAN
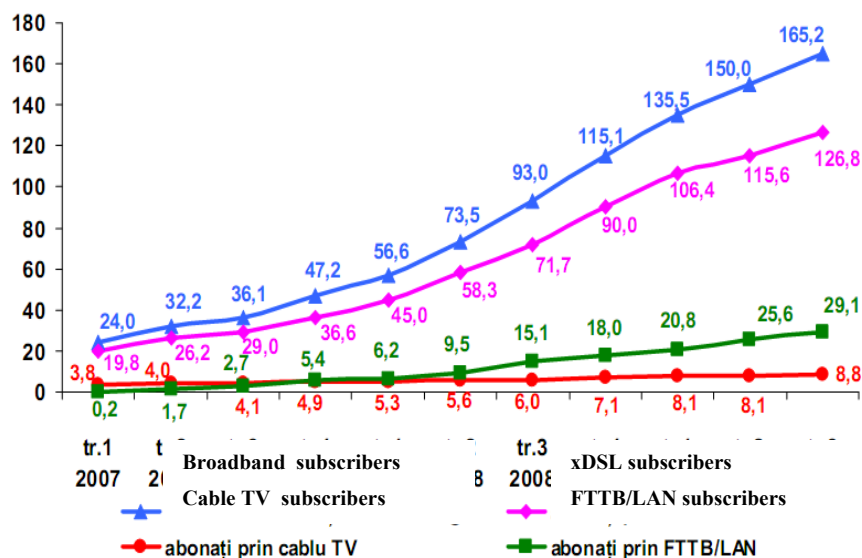
Figure 6.
The share of the operators on the broadband services market
according to the number of subscribers
(Source: ANRCETI, Statistics http://www.anrti.md retrieved on 13.11.2009)
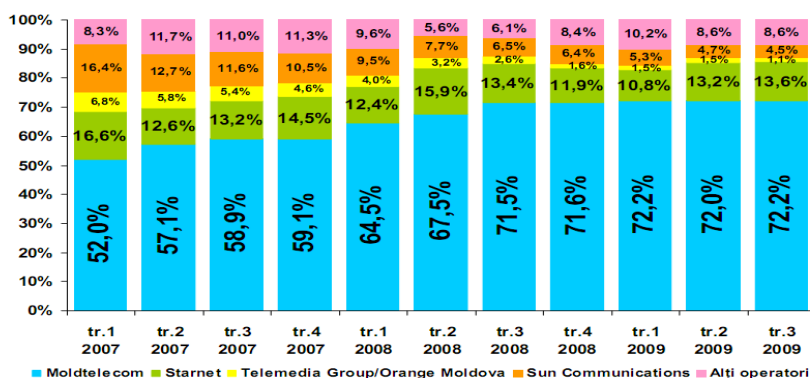
Total multimedia mobile users, thousands
Users per 100 inhabitants

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Figure 7.
The evolution of the mobile multimedia
subscribers, including mobile Internet
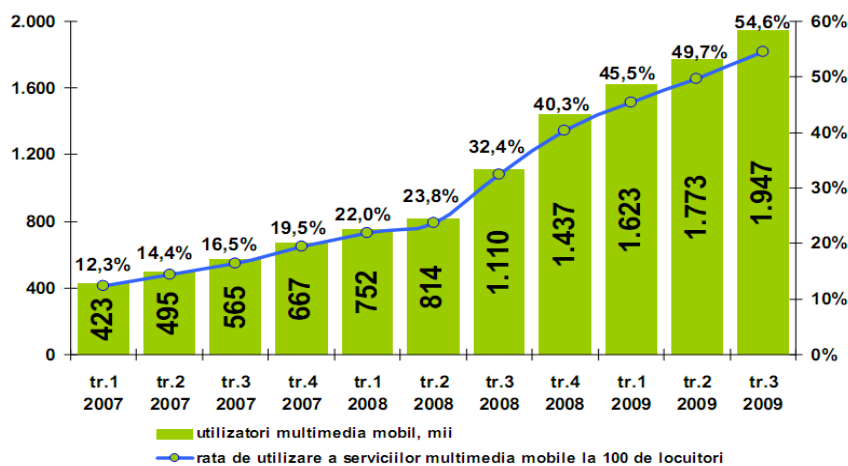
(Source: ANRCETI, Statistics http://www.anrti.md retrieved on 11.11.2009)

Figure 8.
The market's structure according to the number of users
(Source: ANRCETI, Statistics http://www.anrti.md retrieved on 11.11.2009)

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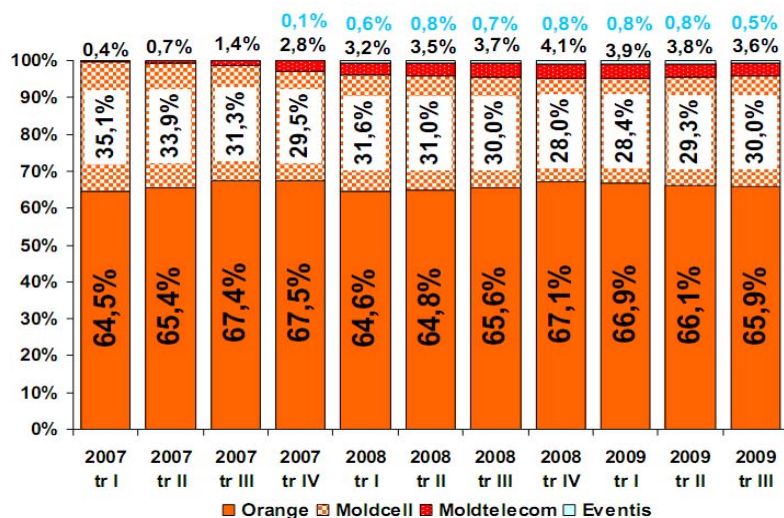
Figure 9.

The evolution of the subscribers number and of the penetration rates for mobile telephones , thousands

Total users   **Penetration for mobile telephones**
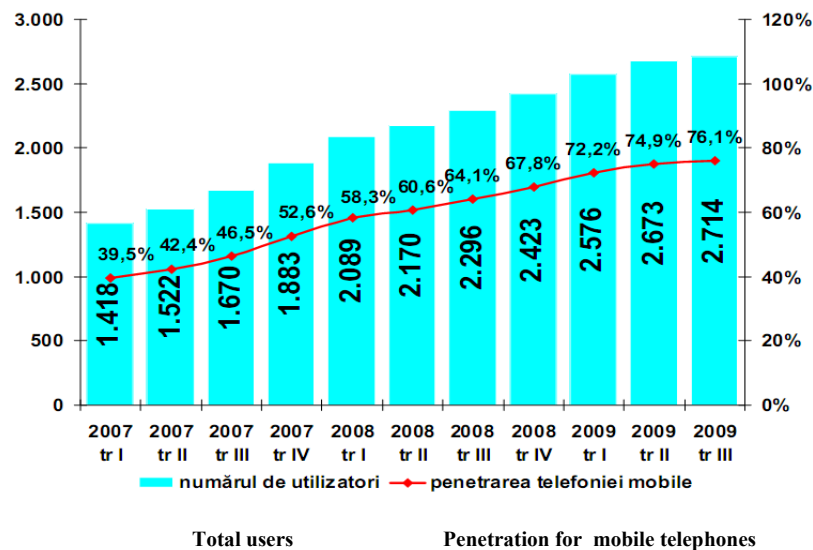
(Source: ANRCETI, Statistics http://www.anrti.md retrieved on 12.11.2009)

In conclusion, the minimal technical – technological base in order to carry out e-/, m-/, d-/, on-/ line learning in the Republic of Moldova exists. Obviously it should be continuously maintained and improved. What does not exist in RM: an adequate legislative frame, the financial support for the necessary measures, including for mass perfecting of the teaching staff, for the elaboration of new training digital resources.Computer based assisted training and mediated by modern I&CT realizes the best way for initial training, personified self learning and life long perfecting for anyone, allowing to the study process to fit the personal life's compulsions and offering advanced possibilities of communication and collaboration of the student with the learning environment, fact that needs the respective efforts. The universities, as education and research forum, initial training and continuous perfecting of all levels teaching staff, the first should raise to the level of the EU's requests. This is *the main chain link of the reforms chain* of the education system from RM for its conformation to the EU.

In the case of RM is necessary to be adopted a series of measures and acceleration mechanisms of the reform and education's every level computerization, motivation and to draw in the teaching staff. Here

are just a few of the concrete suggestions on how to achieve some of the goals of the Strategy in the university education field.

- **The reformation of the technologic process** of training and control, staking more on computerized, authorized and certificated systems. New actors of the distance learning are appearing as the authors of digital courses, electronics textbooks, tests: tutors, operators etc. that impose an adequate legislative frame that would reflect all these changes at an organizer's level. There are necessary new laboratories for e-Learning, for education software development and for implementing innovative methods in industry, the creation of certification centres, excellence centres etc. Until these normative documents are not adopted -implemented, all these will remain at a level of particular initiatives and requests.
- **Drawing in into quality** the nowadays organization of the higher education with limited budget allocations and the limitation of the fee training positions stimulates *maintaining at any costs* the enrolled students, fact that contravenes to the quality assurance. Also, the student's impossibility to choose the courses, the professors, and the timetable does not stimulate quality. The fee should be paid by the students not for attendance but for the exams passed. At the same time it would be good that the professors' payment to be made not only for the courses of contact with the students but also for the courses/tests elaborated, for the number of students enrolled etc.
- **The Stimulation of the Informational Culture** taking as a base the international documents and the national normative acts, can be easily proved the necessity of intensification of the active promoting effort of the computer-based subjects within the modern university educational system. The IT study, the use of the information technologies should be considered as a significant part of the general and superior mandatory education as well as of the continuous recycling and training. Once with the informational supersaturating and the adopting of more and more sophisticated technologies, with the widening of the possibilities of Internet access in schools, universities, industrial units, at home, we estimate that in time *every one should have a certain level of the informational culture* in order no to feel disoriented, isolated.

- **Effort coordination** the computerization of the university education, nowadays, takes place in a splendid isolation of the autonomous institutions. The lack of the stipulated Centre at the 24th point of the PAME, of some unique politics in the computerization of the training and control processes, of the training management etc leads to a dissipation of the human and financial resources, considered adverse in the area of education. In the education area there are excellent possibilities for mutual enrichment, the scale effect that practically are not at all valued.
- **Unification/standardization of the IT study programmes**, but not only! Nowadays there is a too high number of computer-based subjects elaborated / oriented towards the teacher and as a result the knowledge is too dispersed. In this context very some good examples are the programmes ECDL/ICDL, certification in CISCO networks, Microsoft and others. This is the way to do with the most of the professions and computer-based subjects, imposing an unique reference frame, unique requests and standards, recognized not only in the institution but at national level and at EU's level. If every teacher has to comply to the requests, then this will discourage the existing practice to teach the student courses according to the available didactic frame (courses, that often disappear at the same time with the teacher's leaving the institution).

The identification of some cooperation and experience exchange options between the organizations and institutions, foreign and native ones specialized form the academic environment, learning ones etc. including by launching some projects, commands, contests etc to get investments and financial support in order to reform the education system, to elaborate and adopt innovations in the education area is required.

CASE STUDIES

The implementation of open distance learning at the State University of Moldova-USM is the standard bearer of the university education in the Republic of Moldova, having the highest quota of the accredited specializations, the highest number of students, professors and scientific personnel etc.

Long Life Learning, Open Distance Learning that will replace the non attendance education, computer based assisted learning, electronic networks, Internet and Web (eLearning) have became the most important tendencies of

reforming the education systems all around the world. By attending distance learning courses people develop continuously their own capacities and qualities.

The courses can be offered through Internet and Web, in a synchronous or asynchronous regime; they can be accessed from home, work or from any other location where there is a computer connected to the Internet.

Thus, anyone that has access to Internet can learn from anywhere, anytime it's comfortable for him and in his own rhythm. Every country encourages the implementation of this new form of open distance learning (ID). The most of the education institutions around the world (over 60%) have adopted strategies in this field. The State University of Moldova is determined to implement this new progressive form of ID.

Thus, at the meeting on 27.03.2007 the Senate of USM decides the creation of the University Council that will organize the Open distance Learning and at the meeting on 24.04.2007 approves the nominal constitution of the Council for the implementation of the Open Distance Learning.

Further on the Council of administration of the State University of Moldova, at the meeting on the 9.10.2007 adopts the following internal regulations:

- Regulation regarding the organization of the Open Distance Learning at USM;
- Regulation of the Open Distance Learning Centre at USM;
- The phases of the Open Distance Learning implementation at USM.

In January 2008 at USM was launched an advanced system of eLearning (AeL-Advanced eLearning, elaborated by SA "SIVECO", Romania), destined to the administration of the electronic content of the courses and of the students (Learning & Content Management System, LCMS). AeL can be successfully used both in the traditional education process and in the distance learning. In February 2008 at USM was prepared the first group of 36 professor users of this system.

At 22nd of April 2008 The Council of the Mathematics and Informatics Faculty (MIF) has approved the proposal of the Applied Informatics Department to launch a pilot-programme at ID at the specialization "Network technologies", profile Informatics.

It has been decided that the management of the faculty to negotiate with the management of USM the concrete conditions of stimulate the application of the innovative methods in the traditional education system and distance learning.

And the mass use of AeL first for evaluation and control in the traditional education, then for teaching, including the ID form is advantageous both for USM and for the teachers and the students. In January 2009 another group of professors / distance course authors and AeL tutors was trained and was launched the Moodle research for distance learning.

In the context of these measures of implementation of IDD/ODL within the Project 08.815.08.04A "The elaboration and application of the innovative methods in distance learning" of the State's Programme "The elaboration of the Scientific and technologic support in the enlighten of the informational society in the Republic of Moldova" at USM recently was launched the web page "Open distance learning" (http://idd.usm.md), was researched and implemented the platform MOODLE for the distance master, were elaborated three open distance courses of general informational culture.

On the site http://idd.usm.md you can find: detailed information about ID, a glossary of terms and news regarding Id, the first open distance learning courses, as well as a series of useful links to other resources and electronic libraries. Within a grant sponsored by Hewlett Pacckard there were elaborated three distance courses for master, other six being in state of work so that from the new year of study will be launched the distance master as a pilot programme "Network technologies".

Towards the end of 2009 taking into consideration the results of the courses with the classic form of learning was taking the decision to be used the Moodle platform for distance learning.

The problems regarding the implementation of IDD at USM are the same for the whole country: the lack of investment, of prepared teachers, the lack of drawing in etc.

Maybe more slowly than expected not as in developed countries as Australia, but in essence at USM they plead for the same innovative forms of instruction, to which the future belongs: the integration of I&CT in education, e-Learning and ODL. Let's hope this will catch to us too.

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OPEN DIRECTORY-REGIONAL:EUROPE:MOLDOVAdetails can be obtained from http://www.dmoz.org/Regional/Europe/Moldova/desc.html retrieved on 13.11.2009

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CHAPTER-23

eLEARNING IN MOROCCO
Developments and Issues in Morocco

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ABSTRACT

Morocco is experiencing a very important dynamic growth and human development considerably. A set of reform on the modernization of the state, human development, economic growth and employment promotion and planning have emerged. Many major programs are dedicated to human development especially education of citizens. This chapter presents an overview on the strategy and actions undertaken by Morocco to achieve the introduction of the use of ICT in education and training. The case studies discussed shed light on the situation of e-learning in Morocco which is defined as: "the use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services, as well as exchanges and distance collaboration".

These studies show both the different approaches adopted by those in charge of the training in order to benefit from numerous advantages of e-learning and other difficulties encountered in its implementation. Following these studies, an synthesis is presented on the reflexion conducted by decision makers and those in charge for training to identify new measures to address the obstacles that hinder the emergence of e-learning culture in Morocco. These guidelines will thus accelerate the use of e-learning effectively to achieve quality education.

INTRODUCTION

Knowledge, competence and creativity became the true sources of the wealth of the society; this encourages governments, industry, organizations and civil society to get strongly involved in sustainable human development. Anxious

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about the importance of the role of education in the emergence of the country towards an information and knowledge society, the majority of the countries adopted a policy which dedicates an important part of their BNP to the expenses of education and training.

For a successful transition to the knowledge society, Morocco has committed also first and foremost to make general and modernize its educational and training system. The charter drafted, for «the decade of education », a period stretching from 1999 to 2009, and seeks to adapt Moroccan education particularly to the international standards. It offers a set of initiatives to fully reorganize the educational system focusing on the information and communication technology promotion. The reform of the educational system and training particularly revolves around two goals outlined in "e-Morocco" strategy: «reducing the digital divide »and «the positioning of Morocco at the international level in terms of NICT».

The usage of ICT in education and training and particularly e-learning are seen by Moroccan state as a promising and inevitable channel towards a diversification of good quality learning modalities. They efficiently meet the needs in terms of renewal of knowledge which intensifies in a growing way.

We come by the present chapter to shed light on the strategy and actions undertaken by Morocco to come to the introduction of the usage of ICT in the traditional field of education and training, and to present the situation of the e-learning particularly as supplementary solution necessary to quality and to interactivity trainings.

This chapter is organized in six parts: The first section outlines the context of development in Morocco; it reviews the biggest programs of development and the governance at the national level and the international participation. The second section introduces evolution, the national charter and structure of the Moroccan educational and training system. The third section presents the strategy adopted to achieve the incorporation of ICT in the learning. The fourth section, devoted to deployment, we are interested in actions and programs launched by Moroccan government for the reinforcing of telecom infrastructure, as well as the efforts to introduce the ICT in the educational and training system. The fifth section skims over the different developed elearning initiatives both in educational context and professional continuous education matters. The last section is set to display some experiments lived of implementation of e-learning with their strengths and weaknesses

COUNTRY

An Atlantic and Mediterranean country, Morocco is in the northwest part of the African continent. It is separated from Spain by the strait of Gibraltar. It shares its borders in the East with Algeria and in the southeast with Mauritania.

The west and the north respectively lie on the Atlantic Ocean and the Mediterranean Sea. Its surface is of 710 000 km2.

The Moroccan population is estimated at 34,3 million inhabitants in 2008 among which 56 % live in cities. It is a country which registers entirely in the historical space of Mediterranean Sea while benefiting, thanks to its Atlantic façade, from a window on the new world which reinforces its aspirations of opening.

Muslim country, of Arab and amazighi culture, it is African not only because it is part of the continent but because of the deep cultural features of its society. Morocco was the soil of several dynasties (Almoravid, Merinid). It was colonized by France and Spain.

These declared its independence in 1956. Since the independence, anxious about its development, Morocco is engaged in an internal and external context marked by deep mutations, Morocco weighs it and assumes involvements in terms of economic, political and institutional reforms and it realizes the vocation to impact, for a long time, the project of society to which its elite aspires.

At the external context, it is member in the European free trade area, in full leadership in the promotion of a renovated model of euro Mediterranean partnership and the free trade area with USA.

It speeds up, resolutely, its traditional economic, social and political solidarity with the Maghreb, the Arab world and Africa. It also develops voluntarist policy South-South cooperation with Asia and Latin America. The main advantage of the economy of Morocco is its proximity to mainland Europe insofar as the latter has very largely benefited from numerous relocations carried out by European businesses. Tourism generates about 15 billion dollars (USD) in revenue; Morocco is part of the favorite destination of the European.

Figure 1.
A map of Morocco

At the internal context, Morocco witnesses, globally, a dynamics of human growth and development which it controls progressively. Morocco has made significant progress in the path to building a modern State; the progress made in the recent years in the field of human rights, health care, in the participation of woman on social, economic and political issues. Morocco is also fond of the modernization of the administration and the improvement of the performances of the public. To achieve this progress, reforms revolves around the modernization of the state, human development; economic fast growth and promotion of employment and special planning have emerged.

DEVELOPMENTS IN MOROCCO:
Reforms of Development and the Governance

Among the biggest programs which were set these last years and that touch human development, we shall mention:

- The national initiative of human development (NIDH): it has emerged towards the end of 2005. It is an innovative and ambitious initiative aiming at reducing poverty, vulnerability, precariousness and social exclusion, in accordance with the millennium goals for

development and commitments taken by Morocco and also at the institution of a permanent dynamics in favor of human development (http: // www.indh.gov.ma retrieved on 14 July, 2009).

- The e-Morocco strategy: National strategy for the development of the Society of Information and the Economy of Knowledge named e-Morocco 2010 was lunched in January, 2005. Since its elaboration, e-Morocco was able to benefit from the general agreement of the different actors intervening in the area of ICT (governmental departments, committees in place, private sector and society). The following paragraph presents the main axis of this strategy

EDUCATION AND TRAINING SYSTEM IN MOROCCO

At the dawn of independence, Morocco fixed as objectives the general implementation of schooling and a good quality education. Several projects of reform being accomplished, the last of which dates back to the year 1999 named National Charter of Education and Training (NCET) (Hddigui, 2007). NCET is the fourth project of reform of education since independence [MIN04]. It is centered on three fundamental objectives:

- the general implementation of a fundamental education for all children from 6 to 15 years old and a basic education for all;
- the improvement of the quality of education and training and performances of the educational and training system (SEF);
- the improvement of governance of SEF and overall its coherence

Since then, progress was recorded in general implementation of primary education but important delays on the calendar of implementation of reform being accumulated in certain areas. This situation urged the decision-makers to assess the plans of actions and to offer a supplementary and urgent strategy named: urgent plan for the period 2009-2012.

The structuring of the Moroccan educational system, such as it was kept by CNEF is composed of three levels:

- fundamental education;
- The higher education including university training and professional training.
- Non formal Training.

Fundamental and Secondary Education

Since 2000, fundamental education is composed of the preschool and primary education followed by collegial education and finally a secondary or professional education. Arabic is the main language at this stage of education.

Higher education

In Morocco, the birth of the university takes on its full sense; its university can pride on one of the most ancient. It is about the mosque Al Quarawiyin University in Fez, created in 19th century.

In the second half of the 20th century and at the end of the French protectorate, a second university, it is about the university Mohamed V in Rabat, was created. It was a persistent hybrid university implement up to the middle of the eighties. From the beginning the 80s, the continuously growing flux of students and speeded up economic and social development of the country requested from the higher education a consistent adaptation of physical and pedagogic structures demanding the creation of other universities.

Nowadays, Morocco counts 15 universities. All the universities work with the LMD system (bachelor degree, Master and PhD) which was instituted in establishments with open access since 2003 and in some engineering schools since 2007 (Lahlou, 2009). Up till now, it is the French language which is used for the education of the majority of subjects and especially for scientific and technical education (medicine, engineering). For other disciplines such as Law, economy, etc both Arabic and French languages are used.

It is also to be noted that further to the strong demand that Morocco has known in the field of education during the two last decades, the Moroccan educational system also integrates the private schooling.

The latter is essentially composed of national institutions and of some establishments dependent on foreign cultural missions, notably the French.

Non Formal Education

In spite of all efforts of extension of the formal educational system, many groups of the population remain outside the school, or leave it before reaching a level which protects them against risks of the illiteracy which touches more than four adults out of ten. Morocco, under the framework of an enlarged vision of education, adopted a policy of diversification and

complementarities of modes of learning, by developing various programs of literacy and non formal education. NCET kept the development of this sub-sector, as an essential lever for a good quality education and training for all.

Improvement of the Quality of Education
With a view to ensuring a good quality education for all, several programs and projects were set benefiting from the foreign financing and from the international technical support. For instance the French collaboration with APEF project, European Union with MEDA project and the projects ALPHA Morocco financed by the World Bank.

The majority of projects had as objectives to participate in the reduction of the rate of literacy, the teachers' professional continuous education to improve pedagogic quality and improve the rate of schooling and the reduction of the rate of school abandonment. Further to these efforts, Morocco knew a considerable progress in the area of education and as accounted for by the statistics introduced in the national report on the development of education (RAP08, 2008).

But, Morocco, while doing all the requested efforts to reach the Objectives of the Millennium for Development (OMD) and e-Morocco strategy, is persuaded that the introduction of ITC in its educational system and training is a compulsory condition (RAP07, 2007).

EDUCATION AND THE USE OF ITC

The use of ITC in and for education is now perceived worldwide as a necessity and an opportunity. They therefore became an inevitable means to achieve a good quality training, to make it more efficient and make easier the preparation for the different jobs the society needs (Mahdi, 2007). Therefore, Morocco is no exception, there was a big motivation of the decision-makers but besides the official report relating to the digital fracture with the countries of Europe, the access of the citizens in ITC is slowed down by several constrains, namely:

- Reduced competences due to "illiteracy" in ITC;
- The reduced rate of household equipment in matters of microcomputers due to the weak purchasing power;
- The restricted access to Internet network due to the fees of accesses which still remain beyond the reach of the majority of the population;

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- Deficiency in contents in comparison with the national needs;
- The lack of incentive governmental policy for access to ITC.

Many projects and programs were launched to overcome these obstacles while answering axes defined by e-Morocco strategy. These projects center on the three following main and supplementary axes:

- Infrastructure: to make the access to information easier;
- Training: train the users of these facilities for pedagogic purposes;
- Development of contents: that concerns the development of pedagogic contents adapted to education in Morocco.

Several projects were accomplished or are in progress, each of them targets a public according to the structuring defined in CNET (TRI08, 2008).

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E-MOROCCO STRATEGY

The present strategy revolves around two major strategic goals strongly linked: Reduction of the digital divide and positioning Morocco internationally in the domain of ICT (PTT07, 2007).

To satisfy these aims six major axis were defined (MAE07A, 2007):

- Development of content: Make available structured, useful Moroccan contents, updated and adapted to the needs of the target;
- Reinforcement of Infrastructures: in term of capacities offered, improvement of the quality of services and their diversifications and make at the disposal, homes and firms, computer equipment adapted to competitive prices;
- Generalization of access to ICT services: Simplification and general implementation of the access to the services of basic telecommunications including the Internet, by reducing cost of access and development of the places of public accesses;
- Training: Training in profiles meeting needs for the development of ICT industry (increasing capacity of offer–redeployment) and a training to fight against the digital divide (for example continuous education)
- ICT Industry: Development of a productive, competitive national industry of ICT by the accompaniment of businesses of the ICT sector, the planning of places dedicated thereto, the support for export and the encouragement of R & D and innovation;
- Teleservices: Positioning in the world market of tele-services by the encouragement of relocation and different types of outsourcing (computer processing, info-management, etc) and strengthening and development of the activity of the call centers

Figure 2 .
e-Morocco strategy 2010 (MAE07B, 200)
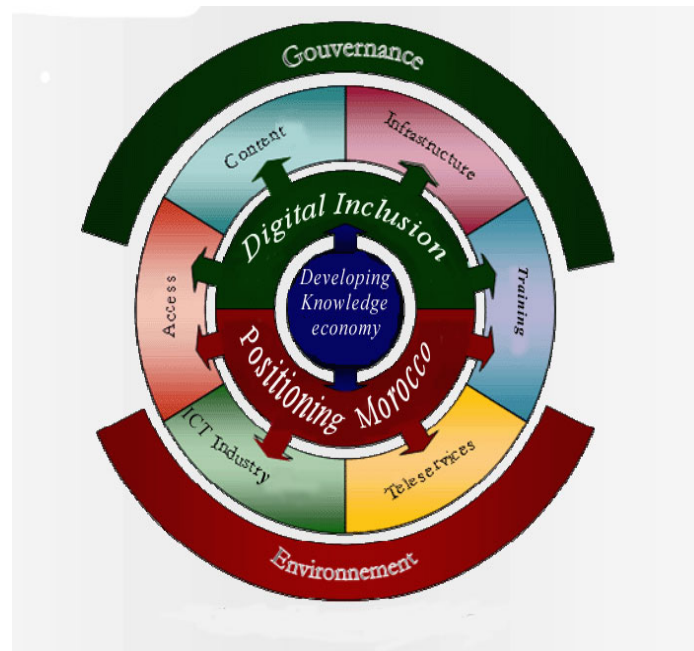
The main pilot projects which were launched are related to the following areas: E-Education, E-Business, E-Government, E-Commerce and the generalization of the ICT in the Moroccan society. Since the domain which interests us in this book is in connection with e-education, we shall first introduce a panorama on education and training in Morocco before approaching the e-education or the use of ICT for training.

Fundamental and Secondary Education
GENIE: it is one of the key programs planned by e-Morocco strategy (GEN, 2006). Its objectives are:

- the equipment of schools, secondary schools and high schools with multimedia rooms connected to Internet,
- training of the teachers in ITC,
- acquisition of digital pedagogic means and
- development of usage of TICE [GENIE].

Nafida: being a continuity part of the program GENIE, this program targets the teachers only, so as to be able to be equipped with computer equipment, subscribe at Internet high debit, to acquire tools and pedagogic contents and e-learning platform (Ouzahra, 2008).

ALEF: a program of assistance initiated by the American agency for international development (USAID), these purposes aim at reinforcing the capacity of the teachers and establishments (elementary and secondary education, literacy) to dispense their programs appropriately. They also tend to help the areas of education and professional training to prepare futures graduates to meet current and future needs of Morocco in matters of competences (ALEF, 2009).

TVI: It is a pilot project relating to the use of the interactive television relying on a connection by satellite; it was intended to give remote trainings to improve competences of the teachers of elementary education in rural areas (Abbassi, 2004).

Higher Education
MARWAN: the project MARWAN has as objective to endow the Moroccan University with a high debit network and thus reinforce exchanges between universities while allowing them to participate in the different research projects led by Europeans networks.

GENIE-SUP: this project is part of the program GENIE; it aims at bringing up to standards the material of facilities in higher education, development of digital means, and promotion of scientific and technical research.
CVM: The Moroccan Virtual Campus is a project intended to federate and to share the different initiatives of the public universities in matters of e-Learning to be able to develop courses of study eventually given remotely for three levels: professional, fundamental degree and the specialized Master [CVM].
MEDA-ETE: it is a logical continuation of the project MEDA financed by the European union, Its objective is to develop professional training in ICT by giving a training in the e-learning (production, tutoring system, evaluation) in favor of the training officers of professional training centers [MEDA].

Non Formal Training
Let us note that, in parallel in the areas of university and professional, fundamental training, some ambitious projects exist touching the area of

literacy. e-alpha Literacy by ICT is one of the examples of projects among several initiatives. Its objective consists of the creation of the contents of the programs of literacy on multimedia support in the form of simple educational software program of use and the adaptation of these contents to a web format. It is a training of the illiterate adults in Arabic language.

All these programs and projects show well the importance and interest that «the use of ICT in education and training has in the strategic axes of the vision of the Moroccan decision-makers for the development of the country.

TELECOMS INFRASTRUCTURE AND COMPUTER EQUIPMENT FOR THE INCORPORATION OF ICT IN EDUCATION AND TRAINING

To implement acts inscribed as part of the orientations of e-Morocco strategy and more particularly: «Generalize telecommunications infrastructure and facilitate access to equipment » and «to ensure adequate training to the needs of the knowledge economy», the Moroccan government launched several actions.

In this section, we are interested at first in initiatives taken to reinforce telecommunications infrastructure, and then we present the efforts committed to introduce ICT in the educational system and training.

Telecommunication Operators
The three operators Maroc Telecom (Ittissalat Al-Maghrib), Méditel (Medi Telecom) and Wana share the Moroccan market of fixed and mobile telephony.

Maroc Telecom remains the leader on the market of the mobile telephony, and the first provider in the Internet by ADSL. Fixed services with restricted mobility given by Méditel and Wana puts an end to the de facto monopoly of Maroc Telecom.

Other actors operate sharply in the sector of telecommunications in Morocco since 2002, it is about INQUAM Telecom SA, Moratel SA for a shared resources radio-electric network, European Datacomm Maghreb SA, Thuraya Maghreb SA, Soremar Ltd, Orbcomm Maghreb and TESAM Maroc in a public telecommunication network via satellite of GMPCS type and in fine Spacecom, Gulfsat and CIMECOM in VSAT networks.

Regulation of the telecommunications sector: The strategy of the liberalization of the telecommunications sector rests on the institution of a legal framework compatible with the systems of the international operators, for this purpose, the National Agency of Regulation of Telecommunications (NART) was established in 1998. It is a public establishment instituted by the Prime minister, set as legal entity and with financial autonomy.

It looks after the respect for loyal competition in the telecommunications sector and to settle the related litigations. It counts among its functions the instruction of applications for licenses and authorizations in the field of private networks, as well as frequencies.

It also takes care of the monitoring of the development of technologies of information and communication. Since May, 2007, NART manages in addition to that the domain names ".ma", and also operates as national authority of licensing and surveillance of the electronic certification.

This policy of the liberalization of the telecommunications sector made it possible to switch from monopoly to a competitive market, and helped Morocco become a regional leader in this area.

The latter witnessed a considerable development with a turnover jumping from 1,01billion USD in 1999 to more than 4,25billion USD in 2008. Its contribution in the Gross domestic product (GDP) is 7 %.

The Market of Fixed and Mobile Telephony
The number of the subscribers of fixed telephony passed from 1 140 in 2001 to 2 991 158 in 2008. 2004, 2005 and 2006 were marked by a very poor penetration rate of 4,3 %, but which passed to 9,7 % in 2008 after the introduction of fixed telephony with restricted mobility.

The part of the residential lines in 2008 jumped to 82,1 %, as opposed to the professional lines and to the publiphones whose related shares dropped down. Concerning the market of the mobile telephony, the number of mobile subscribers reached 22,8 millions in 2008 with a rate of 73,98 % penetration (ANRT , 2009).

Concerning the allocation of clients of the mobile by types of subscription, the prepaid formula dominates very broadly with a share of 96 % against 4 % for the postpaid. (ANRT, 2009)

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Internet in Morocco: Internet has been introduced in Morocco in November 1995, during these two last years the market of the Internet witnessed a good progress compared with other years, the complete Internet base attains 834 463 subscribers in March, 2009.

The access via ADSL remains the most favorite mode of connection with a share of 58,21 % against 40,66 % for Internet 3G.

Figure 3.

Internet subscribers by access
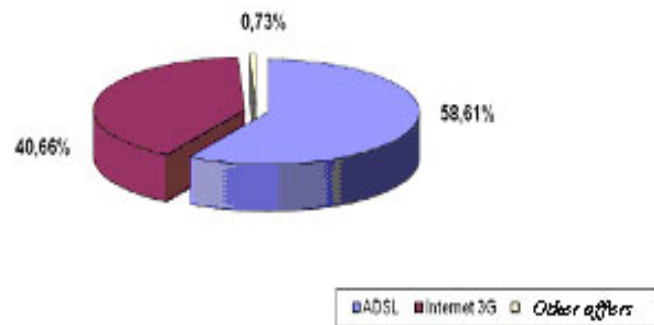
Despite of the marked progress, the rate of penetration of Internet remains weak compared to the average rate of penetration in developing countries.

This can be accounted for by:

- a set of obstacles which slow down the access to Internet at home (the high cost of subscriptions (60 %), non-equipment in computer for 1 individual out of 3, the illiteracy/lack of training (27 %), the absence of usefulness (20 %), The fear of the parents that the Internet diverts their children of their studies (10 %)) and
- the strong explosion of cybercafes on the whole Moroccan territory (ANRT , 2009).

Figure 4.

Home-outside-Internet-access
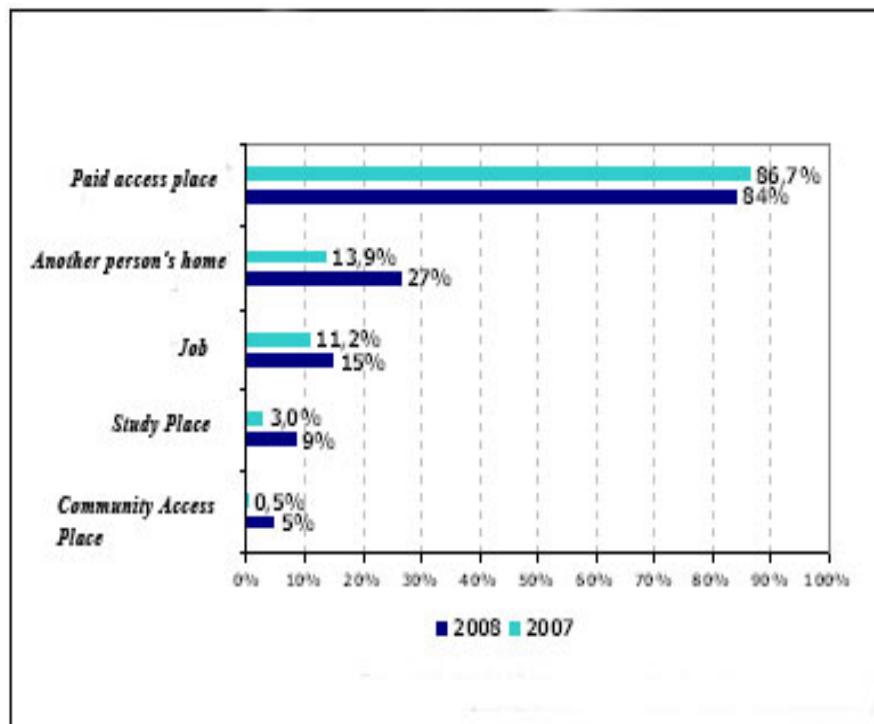
The registered rates of penetration of telephony and Internet and the numerous offers of services, which keep increasing, explain well the success of the strategy of the liberalization of telecommunications sector in Morocco

Integration of the Usage of ITC in Education and Training
Conscious about the necessity of the incorporation of ICT in education and training to contribute to the reduction of the digital divide and answer the objectives of the millennium, the Moroccan government promised to take a certain number of measures, matched by definite timelines, to win this challenge.

The reform inscribed in NCEF of 1999 played an important role to draw the broad lines of modifications and adaptations that the educational system and training must undergo during period 2000–2009.

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It is thus, as it was introduced in section III, that some ambitious programs and projects were adopted, contributing together to the development of necessary infrastructure for the use of ICT in education and training. We are interested in this part in the description of these projects in term of infrastructure (MAE07A, 2007).

Fundamental and Secondary Education
The GENIE program: it was inaugurated in 2005 by the Minister of National Education, Higher Education, Staff Training, and Scientific Research (MNEHESTSR); it initially aimed at the general implementation of the introduction of ICT within all public schools (schools, colleges and high schools). Its strategy is three-dimensional: Infrastructure, Training and pedagogical Contents. This program which spread out over 3 years (2006-2008), envisaged the equipment of 8604 establishments by multimedia rooms connected to Internet, and the training of 230 000 teachers.

In 2008, an assessment of this program was launched concerning the condition of the equipment given and the quality of usage of the multimedia rooms. The result of this inquiry underlines the discontent relating to the first results of the phase 1.

Indeed, the stage of the generalization of ICT enabled the equipment of 1878 establishments with 2058 Multimedia rooms with which only 1543 are operational. As for the training of the teachers, It enabled 30 000 persons to benefit from it. This report of valuation also gave an account of the discontent noted as for the real pedagogical impact of the first stage of deployment.

As a result of these findings, A roadmap has been produced, it provides a five-year rational deployment (2009-2013) of a new strategy taking support on the review of the policy of the deployment of equipment, the improvement of the modules of training and the conduct of change.

This new strategy was marked by the addition of a fourth axe, result of the assessment of the first stage of GENIE program. It is about the «Development of usages »; it is an axe which comes to follow closely what the final users, in matters of education and training, do with ICT. It will therefore be a matter of noticing the usage of the tools of communication, collaboration and production of contents by the teachers, to value and promote them. On the infrastructure level, it is planned to continue equipping establishments according to following distribution (MEN09, 2009):

Table 1.
Number of establishments

Year	2009	2010	2011	2012	2013	Total
Number of establishments	883	2119	2013	2010	2010	**9260**

And for the plan of training deployment, the Directorate of GENIE Program (DGP) undertook, in collaboration with its partners, the review of the curricula and the development of a frame of reference of competences adapted to each of the three targets: teachers, inspectors and directors.

Table 2.
Estimation for 5 years

Year	2009	2010	2011	2012	2013	Total
Teachers	61083	38724	27857	24373	24373	**176410**
Teachers trainees	3920	3920	3920	3920	3920	**19600**
Directors	2412	1298	1350	2100	2100	**9260**
Inspectors	2671					**2671**
Total	**70086**	**43942**	**33127**	**30393**	**30393**	**207942**

For the part relating to digital learning resources, DGP mobilized different means namely the creation of the national laboratory of digital learning resources, of programs of training orientated to the use of ICT and the production of digital contents, and the launching of invitation to tender for the acquisition of good quality means adapted to Moroccan cultural and scholastic context.

Nafida: Initiated in 2008 by the Mohammed VI Foundation for the promotion of social works for the education and Training Sector, Nafida is in continuity of the program GENIE. It is the result of a partnership between the foundations, the MNEHESTSR; the Universal Service Fund of the Telecoms;

Intel; Microsoft; telecommunications operators and partners of computer equipment.

The projects Nafida comes to reinforce the introduction of ICT in the field of education and to participate also in the reduction of the digital divide with the countries of the North. Thanks to a fund of 53,6 million USD, Nafida works to speed up the accessibility of the teachers in ICT by giving them the possibility of equipping themselves with computer equipment and of subscribing in high debit Internet at very affordable prices. Spreading over three years (2008-2010), the project plans to benefit 100 000 teachers, according to following sharing out of 25 000 in 2008, 50 000 in 25 000 in 2010. Up till July 2009, 39 040 were registered as beneficiary of PC laptops and 150 000 Internet connection. An agreement was signed between Mohammed VI Foundation and the three main operators (Maroc TeleCom, Méditel and Wana), inviting these to contribute to the success of this operation by offering a large choice of debit with very affordable expenses in comparison with those of the market.

Finally, Intel and Microsoft participate at Nafida by financing the equipment of the material, the assignment of licenses and the pre-installation of instructive contents. The teachers will have so access to ABC e-learning programs of Microsoft and PC BASIC of Intel.

In June, 2009, a tender has been launched by the Foundation for the acquisition of pedagogical contents and e-learning platform, the objective is to conceive, implement and assist with the working of an e-learning system to the advantage of the teachers who are members of the project Nafida.

TVI: initiated in 1996 by the MNEHESTSR with the help of the UNESCO and ITU (International Telecommunications Union), the project Interactive Television TVI is an innovative remote training device. It was implemented in 2000 to develop competences of the teachers of primary schools practicing in the rural areas of the kingdom.

A Presentation Centre located in Rabat broadcasts the program of remote continuous Training, via satellite links, in 12 learning sites located in remote locations. These sites are areas of training located as closely as possible to the teachers in rural areas and can receive until 60 learners (Abbassi, 2005). The training device is of hybrid type, there is: a presental mode, remote learning via interactive television by satellite, remote learning by Internet and of self-training.

Trainers are permanently affected in the sites of learning; they take care of the animation of trainings with a presential mode and assistance for remote trainings.

The official launch of project TVI happened on 29 March 2004, with the start of the first   cycles of training intended for teachers.

Higher Education
MARWAN: Started in 2002, the MARWAN project is the first non-profit-making national computer network, dedicated to interconnect the establishments of education and research.Starting with a backbone of 2 Mbps interconnecting the establishments of training with liaisons between 64 Kbps and 512 Kbps, MARWAN progressed in 2004 towards a new high debit network MARWAN2 filling growing demands of the universities in passer-by band. Nowadays MARWAN2 is a network based on the backbone MPLS of Maroc Telecom, it offers in 107 establishments the possibility to connect to important debits which are 2 Mbps or 34 Mbps.

Table 3.
Establishments connection

INSTITUTIONS	Connected	Total	%
Universities	13	14	93%
University Establishments	77	80	96%
Institutes and Research centers	7	-	-
Ministerial Deptof Education	2	3	67%
University Hospitals	1	4	25%

It is also connected to other networks for teaching and research in the world. This connectivity is assured under of the project EUMEDCONNECT by a link little by little with GEANT network at 155 Mbps between Rabat and Catane in Italy.

GENIE-SUP: natural suite of project GENIE, aims at the generalization of ICT in higher education, development of digital resources, it aims at bringing up to standards the material of infrastructure in higher education and finally at the promotion of scientific and technical research.

The bringing up of the infrastructure to the standard consists of:

- bringing up to the standard the computer base devoted to modules LCI (Linguistic, Communication, Computer) of the rooms of education equipped with multimedia tools (20 students/terminals),
- Endow 100 % all residences and student halls of residence of free access room and points of access out doors (30 students/terminals),
- Endow every university with a unit of computer assistance and service.
- Endow all computer tools research structures and make general facilities wireless networks

Reinforce the Moroccan Virtual Campus and make it general in all the universities

CVM: The Moroccan Virtual Campus is an action initiated in 2004 by the MNEHESTSR, it has as role to support and encourage the 15 Moroccan public universities to get the new practices of education. The CVM also serves to develop and share digital means produced by the teachers allowing developing the e-learning within the establishments of training.

It allowed several interesting achievements particularly the creation of the Centers of University Resources (CUR). The CUR consists of the teachers-researchers and of technical personnel organized at the centre of resources which are in charge of the administrative, pedagogic and technical aspects of the e-learning. It is at the disposal of the teaching body of the university for all that is related to remote training. It sets as main objectives: Incorporation of ICT in higher education, Promotion of the e-learning and to modernize pedagogical practices. The CUR gives a support in matters of advice and training relating to the development of contents and also makes available for teachers the multimedia rooms equipped with material resources and software for the development of contents.

ELEARNING IN MOROCCO: Inventory of Fixture

Now, the majority of e-learning projects in Morocco are used in the training of the adults. These initiatives aim at the strengthening of competences of the officials in a specific job. We will afterwards tackle the e-learning wingspans projects devoted for continuous training.

Public Sector

Being persuaded by the contribution of ICT in the improvement of quality and the effectiveness of their services, several Moroccan ministerial departments invested to integrate them into the process of their system. The e-learning is one of the actions of modernization of the administration.The initiatives of the MNEHESTSR were the first ones in Morocco:

- The jobs on a system of interactive television TVI were initiated in 1996. The objective is to develop competences of a big mass of teachers by palliating their geographical constraints. This project allowed giving remote trainings in favor of some hundred teachers of primary schools practicing in rural areas. The model of training includes three main elements: individual learning, collaborative study and support of learning. 17 modules of training were developed, their content aims firstly at developing the competences of the teacher to allow him follow remote continuous training by interactive technologies, then to be able to develop the workmanship of taught disciplines (languages, computing, sciences etc) and pedagogical and didactical competences relating to the different roles of the teacher (planning, assessor, animator, researcher and teacher) (Lablidi, Abbassi, 2008).

- **COLLAB** another initiative of the Ministry of education launched in 2005 with a technical accompaniment on behalf from ALEF of USAID. The purpose of this project is to favor the access to training and answer a growing demand of the Moroccan instructive community in training in ICT. We propose in the following section to display the actions of training accomplished as part of this project.

- The Moroccan Virtual **Campus** is also a plan of MNEHESTSR intended to federate and to share the different initiatives of the public universities in matters of e-learning to be able to develop courses of study eventually given with hindsight for three levels: professional, fundamental degree and the specialized Master. It managed to accomplish several actions to achieve the incorporation of ICT in education and promotion of the e-learning within universities (Bennani, 2006):
    - Setting UP centers of university resources
    - Training of 21 e-learning experts under the framework of coselearn program outcome of cooperation between CVM and Switzerland.
    - Training on the network administration and e-learning platform in favor of 14 technicians dedicated for CUR

- The **Nafida** program, launched by the Foundation Mohammed VI, includes in its actions a project of setting up an e-learning platform in favor of teachers of MNEHESTSR. An invitation to bid was launched in June 2009, the objective is to identify functional and technical needs allowing to develop basic infrastructure as well as content. The content to be integrated in the first phase will concentrate on product provided by INTEL of the type: PC Basics, Skoool , Teach Advanced Online, Teach Essential Online, Online Teacher Community(PROJET NAFID@, 2008).

Other Ministerial departments, interested in the articulation of ICT and training, have invested in the area of e-learning:

- The Ministry of Economy and Finances of Morocco decided in 2003 to adopt the e-learning as solution to supplement and modernize the training of its officials. FORM@NET is one of the first platforms in the ministerial departments in Morocco set up by the Ministry of Finance. Under this framework, this Ministry could produce and integrate several pedagogic resources. This experience will be presented in detail in the following section
- The Ministry of Justice launched a project in March 2006 «e-learning Judicial Curriculum ". Financed by the American Agency of development (USAID) in close partnership with the association ABA (American Bar Association). This project being deployed, aims at the production of a package of eight modules of online training (descent, Approach of type, confirmation of marital relation, etc) in favor of the judges and to the Moroccan clerks in charge of files of the code of the family "MOUDAWANA". The choice of the e-learning is justified by the wish to standardize the contents of lessons but also to allow training the maximum of judges' by avoiding the constraints of availability and travel.
- The first version of modules was accomplished in October, 2007. A pilot experimentation of the remote training of these modules was implemented in favor of a hundred of magistrates. The purpose is to measure the degree of reaching of objectives fixed by the project. In March 2009, a second more adapted version was produced taking into account recommendations drawn from the assessment made to disclose lacunas met during the making of pilot online sessions

Without forgetting, the university initiatives which gave rise to projects initiated in collaboration with European organisms:

- The African virtual University (UVA), which is a program of access to contents in asynchronous, has as objective to enrich the African instructive system. It is spread in the French-speaking African countries, and Morocco is called to be the driving force.
- Project EUMEDIS, aims at setting up a Euro-Mediterranean network to share resources, by the development of a technological platform and a base of knowledge. Example of projects AVICENNA, MEDNETUNO, MEDFORIST.
- The Mediterranean virtual university: THETYS, four Moroccan universities are subscribed to this plan. This institution leans on NTIC for the implementation of high level educations in sectors considered priority in Mediterranean such as health, environment, the high-tech, medicine, economy and Law.

Research projects: Other university initiatives contribute to the development of the elearning by the research projects related with its various axis: standards (Daoudi, Ajhoun, 2008), platform (Bouzidi, Retbi, Benkiran, Ajhoun, 2001), tools (Bouzidi, Ajhoun , Benkiran, 2006) (Ouzzif, Erradi 2006), experimentations (Elkamoun, Bousmah, Aqqal, Berraissoul, Benabdillah , 2005).

Private Sector
The Economic context encourages the firm to continuously vary its products and services and as a result to do customized and quick trainings on these services in favor of its personnel.

Training in presential mode becomes inadequate in case it is necessary to frequently free an important party of the personnel for training and to stop production. In such situation, the e-learning is then considered, for the majority of the big firms, as most adapted solution.

Several big firms in Morocco plan an establishment of techniques of the e-learning with a view to answering their needs in continuous training. Among the first experiences in the private sector, there is that of BCP (Popular Central Bank) which set up in 2001, a first project of continuous training on Internet. Lydec also launched a   pilot-project of the e-learning in the field of the office software, applied to certain chosen collaborators. The operator Maroc telecom started several sessions of training centered on the office software and languages in favor of these collaborators since 2006, we introduce this experience in detail in the section relating to case study.

Besides, the very dynamic potential of the Moroccan market of the e-learning shows more and more the interest of the providers of solutions specialized in the domain. It encouraged them actively present their expertise and to accompany administrations and Moroccan firms throughout the life of their e-learning device.

Nowadays, several offices of training integrate into their catalogues of the remote training degrees such as Master. The civil society is also one of the actors being interested in the use of the elearning.

For example, the NassrTV.org project which initiated by the international organization SIFE and International Institute for Higher Education in Morocco (IIHEM) and in close collaboration with the association Nassr of Rabat is a space of exchange of information devoted to meet needs of deaf people. It gives a content written in three languages French, English and in Moroccan language of signs. This e-learning platform promises to offer the deaf a broader access to information and to education, thus contributing to the improvement of the quality of life of these persons

E-LEARNING IN MOROCCO:
CASE STUDY

In this section we are going to introduce three projects showing the different states of progress of the e-learning in Morocco both in the public sector and private sector and approaches adopted for the setting up of these projects.

The Project Collab: Department of National EducationCollab an implement of remote continuous education accomplished by the National Centre of Pedagogic Innovations and 572 Experimentation (NCPIE) of the

Ministry of national education in close cooperation with the project ALEF of USAID is.

Its conception springs from the will to remedy the problems of access to training linked to distance and answer a growing and varied demand in term of training.

Collab offers two modules of standard remote training: «Production of educational multimedia contents » and «Preventive maintenance ». Training sessions started in October, 2005 in favor of four regions of the kingdom: «Oriental », «Grand Casablanca», «Chaouia-Ouardigha» et «Meknès-Tafilalet»

Table 4.
Learner's participation indicators

Year	2nd session 2006	1st session 2007	2nd session 2007	1st session 2008	2nd session 2008	1st session 2009
Number of participants	20	151	145	527	452	563
Number of group	1	10	9	10	10	14
Rate of abandoning	20%	40%	31%	23%	35%	34%

Conducting Remote Training
Its first session of training in favor of 20 teachers, was an action of experimentation. At this stage, a very limited public filling conditions of choice and to a very specific profile was chosen.

Training was crowned by the realization of a Educational micro-project argued before jury. The training device is meant to be hybrid, alternating groupings in presential mode, tutored self-training, and remote training using synchronous and asynchronous tools of collaboration (chat, forum, video-conference, collaborative workshop).

In addition to the both modules offered by Collab, these learners received training to tutoring; the objective was to make of them tutors for the subsequent sessions of training. These learners could develop competences and techniques necessary for tutoring both technical as pedagogic

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This first action enabled the launch of a second session of training in favor of 151 teachers split into groups of 15 - 20 learners. Every group had two dedicated tutors playing the role of the animator assuring the step of different stages of the sessions of training, and that of expert assisting learners.

Workshops of tutoring system were organized in favor of 26 learners selected to be tutors for future sessions of training, this allowed having a total of 46 tutors bringing life and activities to the Collab's training device. This approach was applied for any session of remote training; this allowed forming 780 learners and 80 tutors. Once the system was well controlled, it was decided to enrich pedagogic contents. Three new modules were set and will be deployed for 2009-2010 sessions: «Pedagogy of integration ", " didactics of English " dedicated mainly to the teachers and " Establishment's Project " in favor of the inspectors and Directors .

The Constrains Faced
During the training sessions undertaken, the Collab's training device has known more human constrains than technical. The project managers concluded that the success of remote training is closely linked to motivation as well of learners involved in the training device, as well as their tutors. For instance, nowadays tutoring system is done in a voluntary way, nothing compels the tutor to ensure the accompaniment and follow up of his trainees.

Therefore incentive measures must be taken in favor of the learners and tutors. The project Collab is an initiative which knew a very big success among the educational community where the people in-charge is aware of the added value of this new approach of training.

This conducted the Ministry of education to create a committee in 2007; the latter is dedicated to set up a national strategy of e-learning to accompany the reform of the Moroccan educational system.

The Project Form@Net: Ministry of Finances
Since 2003, the Ministry of Economy and Finances of Morocco decided to adopt the e-learning as solution to supplement and modernize the training of its officials. FORM@NET is one of the first platforms in the ministerial departments in Morocco set up by the Ministry of Finance. At first, the Ministry started with the acquisition of two modules " Office software" and" learning language", deployment and tutoring system were assured by its own means of edge.

These sessions of remote training registered in the general guidance notes encouraging the officials of the Ministry to use ICT in the professional world. Then, the Ministry produced and integrated several targeted pedagogic resources touching closely and directly the interests of officials such the Preparation for professional examinations guide, online modules on the ministry trades.

Customs Accountancy, forced public debt enforcement, public contracts, internal audit, etc, the objective was to motivate his officials to gain knowledge of this new approach of training.

At the national level, the Ministry was applead to help to dissemination of elearning culture in other ministerial departments of the kingdom, it was provided a funding as part of FOMAP (Fund of the Modernization of the Public administration), for the setting up of a remote training device relating to «the modernization of the management of public resources » in favor of the other ministries (2009-2011).

This project which will span three years 2009-2011, covers topics related to "generic" public management: management accounting, budget, procedures of purchase, management of the personnel and on new subjects related to reform: management control, inward control, internal audit, projected management of human resources.

The year 2009 was marked by the development of a course on «the budget of performance », produced in close cooperation with the World Bank. This course is intended for the officials of the ministry, for the Moroccan ministerial departments and at the international level in countries pertaining to GIFT-MENA network.

The project FORM@NET was appreciated within the managements of the Ministry, and made very good echoes in other ministerial departments of the kingdom as innovative project.

This urged the Ministry to re-inject new energies allowing the increase of profitability of the e-learning by seeking important improvements of productiveness.

Training Done: Concerning the actions of remote training accomplished by the Ministry of Finance internally, they take a census of development and of the deployment of several trade courses to serve the officials of the Ministry.

Table 5. Learner's participation indicators

Year	2005	2006	2007	2008
Modules deployed	•Monitoring IT •Management •Communication	•Monitoring IT •Management •Communication	•Monitoring IT •Management •Communication •Public contracts •Inward Audit • Computer security	• Monitoring IT •Management •Communication •Public contracts •Inward Audit • Computer security • financial computing •statistics •Data analysis
Number of participants	200	400	500	300
External Services	--	40	100	120
Number of hours of training	--	2000	4000	3000
Rate of abandoning	80%	80%	46%	50%

Deployment process of a training module: To control the setting up of a new remote training, the approach of deployment adopted by the ministry is simple but efficient. The Ministry launches an action of pilot training in which it chooses a group of twenty participants about different directorates with this training. The purpose of this action is to disclose in advance any possible problem, from both a pedagogical and technical side, which can arise during the production of the aforementioned training. This enables to offer corrective measures allowing refining the new training before final deployment.

The tutoring in the Remote training device: It was admitted in the approach of deployment of remote training, to appoint tutor for each Directorate of the Ministry. This latter performs this task benevolently. The tutoring function in the remote training device of the Ministry of Finance suffers a lack of regulation. In 2008, the rate of abandonment was low in comparison with other years; tutoring system had a very important role. In effect, it was noted that the success of tutoring system depends on several factors among which:

- The motivation of the tutor,
- The number of courses assigned to the tutor,
- The degree of assimilation of the courses affected
- The number of learners entrusted to it
- The level of elearning culture acquired by his learners.

Among measures taken to fill up these lacunas and allowing putting remote training on the right trucks, the Ministry has created a skills centre of e-learning allowing its Directorates to develop their own courses. Training on «the trades of the remote training » was organized in favor of 13 administrators of training, 36 internal trainers and tutors, and 12 media designers (MEF08, 2008). More numerous considerations under way to institutionalize tutoring system within the Ministry

The Maroc Telecom E-Learning
With an aim to increase efficiency and give more spatio-temporal flexibility to his employees to get trained, Maroc Telecom launched sessions of remote training encompassing particularly two modules: Learning language and office software. Maroc Telecom wished to benefit fully from e-learning advantages: cost, optimization of length, regular adaptation of support and quick deployment, involvement of the operational, possibility of assessing and of improving results in terms of competences and performance. Thanks to inherent advantages in the e-learning to train learners according to their rhythm and their needs, Maroc Telecom wanted to make its employees benefit from this opportunity. Since 2005 until 2008, several session of remote training were accomplished, they concern the two modules «learning language" and "office software", the number of registered learners is given as follows: Its sessions contributed to the transmission of knowledge in the firm without substituting traditional training. Indeed, the training sessions took place on the presential mode, they were dedicated for exchanges more rich with interaction, in case studies and setting up of situation.

Table 6.Learners participation indicators

Year	2005	2006/2007	2007/2008	Total
Languages	23	124	187	**334**
Office software	22	73	735	**830**
Total	**45**	**197**	**922**	**1164**

The trainers, the managers and the people responsible for human resources noticed closely the degree of the evolution of competences acquired by their collaborators.

They encourage the people with difficulties and the non-attendees, to provide more effort to meet efficiently the needs of the firm. However, despite the efforts deployed by the people responsible to succeed the e-learning, this implement of remote training knew significant rates of abandonment raised particularly for module the office software:

Table 7.
Learner's participation indicators

Year	2005	2006/2007	2007/2008
Languages	17%	15%	4%
Office automation	10%	13%	35%

This encouraged the decision-makers of Maroc Telecom to stand back on e-learning actions. The year 2009 was marked by the cancellation of all sessions of distance learning. A study was accomplished to disclose lacunas having favored these rates of abandonment.

The result of this study showed that several factors have acted negatively on the good running of remote training. Among the preponderant factors, there was lack of taking into account of the real needs and the real implementation of the learning proposed. This project remains interesting in the total implement of training and management of competences at Maroc Telecom. Nowadays, consideration is conducted by the people in charge of training, tackling all key axes related to the e-learning: the target population, contents, tutoring system and evaluation. New approaches which will be adopted should make of e-learning a true source of "competitive advantage".

CONCLUSION

The strategy of Morocco was expressed through the liberalization of the telecommunications sector, and the programs of incorporation of ICT in the different ministerial departments, notably that of education and higher education, allowed developing physical infrastructure in a spectacular manner.

We can say that technology does not seem to be any more a notable barrier for the e-learning in Morocco.

The many advantages of the e-learning: the spacio-temporal flexibility, customization of learning, adaptation to the punctual needs etc justify the explosion of e-learning projects in Morocco. Everybody is persuaded of the real added value and the richness of this new mode of training.Despite of the growing popularity enjoyed by the e-learning in Morocco, the decision-makers and those responsible for these projects signal the existence of gaps and obstacles which slow its evolution down in a very sensitive way. It is thus, the strategic reflections are conducted to define new measures aiming at remedying the obstacles which hinder the emergence of e-learning culture in Morocco and allowing speeding up the process of its efficient usage in the different sectors:

Conduct Change
Beyond the technological dimension of this type of training, reluctance of the trainer as well of the learner, in relation to the e-learning stems primarily from the habits related to the presential training. The new role of the trainer: accompaniment and stimulation of interactions between learners, and the contribution of these latters by their autonomy and their commitment in the process of learning requires new tools and methods of the conduct change to make easier the development of the e-learning.

A New Institutional Dimension in Tutoring System
Given the key role that the tutor has in the success of learning, and further to lived rewarding experiences in e-learning, the majority of the holders of projects recommended to institutionalize tutoring system. Some legal measures and regulation relating to tutoring system as part of the professionalization are necessary to motivate and to empower the tutor.

Legal Regulation For The Equivalence of Degrees
Weak legal value, lack of equivalence of diplomas and certificates issued in e-learning mode in comparison with presential training, remains among the main barriers which hinder its evolution (Jankari, 2007). A legal and regulatory framework must be defined quickly to ensure an environment of trust, both to the investors in this field as well as learners wishing to follow distance learning.

Promotion of E-Learning Manifestations
The meetings around e-learning represent a conducive space to exchange

experiences and to broaden the debate between the players in the field. Even if it was reported in e-Morocco strategy to support and promote these events, these remain very little organized.The broad lines drawn by the strategy, of the Moroccan government, the firm and the civil society, to the usages of ICT in the field of education and training remain the key pillars which lead the projects e-learning towards maturity and success.

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CHAPTER-24

eLEARNING IN NORWAY

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ABSTRACT

In spite of its small size, both in geographical area and in population Norway has for many years been in the forefront of distance education and in e-learning. E.g. Norway was the first country in the world to introduce specific legislation on distance education when the *Act on correspondence schools* was passed in 1948. For many years Norway was assumedly the country in the world with the highest number of distance students in proportion to the population.

As one of the richest, according to GPD per capita and most developed countries in the world, it is no surprise that Norway has a highly developed technological infrastructure for distance education, online learning and e-learning.

The government has over the last 15 years taken a number of initiatives to develop ICT competence among teachers and students on all educational levels. By establishing the *Norwegian Opening Universities*, a national body for distance education in higher education the government has clearly defined a strategy for development of online higher education that supports the development of dual-mode solutions rather than establishing a single-mode distance education university. Norway's leading position concerning e-learning was demonstrated in the *Megatrend-project*, that in 2007 found four Norwegian institutions among the 26 identified European 'mega-providers of e-learning (institutions with more than 5,000 e-learning students or more than 100 online distance education courses).

COUNTRY

Norway is situated in the far north-west of Europe. The country is characterized by long distances and is sparsely populated with 4.8 million inhabitants, i.e. 15 per sq. km.

The air distance from south-west to north-east is about 1750 km. Another characteristic of Norway is a long coastline with lengthy fjords, deep valleys and high mountains. Map of Norway with borders to Sweden, Finland and Russia.

Although research indicates that most distance students choose distance e-learning for other than geographical reasons, the Norwegian topography has been the main cause of distance education and e-learning being a great concern for the government, e.g. by Norway being the first country in the world to pass specific legislation on distance education by the *Act on correspondence schools* from 1948.

The recent white paper to the parliament of June 2009 says: "Related to the scattered settlement pattern of Norway distance education is one of the most important form of flexibility of higher education, both in ordinary programmes and for continued education" (Ministry of Research and Education 2009, p.82 (author's translation).

Politically Norway is Parliamentary democracy under constitutional monarchy.

Norway has the second highest GPD per capita in the world, and has also held the first place for six consecutive years in the UNDP Development Index (Wikipedia 2009a).

The Norwegian highly developed economy comes from rich natural resources, such as off shore oil and gas fields, hydropower, minerals and fishing industry, as well as from having on of the largest merchant fleets in the world.

Further, Norway is an egalitarian country with one of the lowest differences in wages in the western world.

Figure 1.
A map of Norway

Norway was among the founding members of the United Nations, NATO and the Council of Europe. Popular votes in 1972 and 1994 rejected membership of the European Union, but due to membership in the European Economic Area most EU legislation is implemented in the country. As a result of both wealth and technological developments there is no surprise that Norway has a high number of Internet users (4.074 mill.) and mobile phone subscriptions (5,041 mill.), (2006 data from 2006 Economic Intelligence Unit 2007).

EDUCATION

Higher education is offered by 7 universities (newly expanded from four after the Law on universities and colleges of 2005 (Lovdata 2005) opened for colleges to be accredited as universities), 5 specialized colleges, 25 university colleges and a number of private colleges. Primary school is 10 years (lower level age 6 till 13 and upper level age 14 till 16). Secondary school is 3 years and opens for entrance to higher education for students who earn 'general study competence, based on exams in a certain number of general subjects.

Norway operates a 'unity school' system where all students at primary school and secondary school level independent on disabilities or directions of studies attend the same schools. Vocational secondary schools and the more theoretical based gymnasiums were merged into secondary schools in 1974. On the tertiary level there are also a large number of public and private vocational schools og duration from 1/5 to 2 years. Both higher education institutions and tertiary vocational schools must obtain accreditation from the Norwegian Agency for Quality Assurance in Education (NOKUT) that was established in 2002. Recent reforms of the educational system include the 'Quality Reform' in higher education from 2003 KUF (2001) that gave institutions more freedom and a new degree structure (where the Bologna Declaration concerning comparable standards and system based on bachelor, master and doctoral degrees and levels were introduced). Further, the reform emphasized closer follow-up schemes for students and introduced systems for quality assurance (Kunnskapsdepartementet 2007).

The 'Knowledge Promotion' initiative is the latest reform in the 10-year compulsory school and in upper secondary education and training. It introduces certain changes in substance, structure and organization from the first grade in the 10-year compulsory school to the last grade in upper secondary education and training. The reform took effect in autumn 2006 for pupils in grades 1-9 in 10-year compulsory school and for students in their first year of upper secondary education and training.

In the adult education system the 'Competence reform' were introduced in 1999/2000 with the aim of increasing access for life long learning and competence development in the adult population (KUF 1997, 1998). As a result a new body, the Norwegian Institute for Adult Learning (VOX), was established in 2001. The reform included revisions of legislation, accreditation of prior learning and the development of a market for in-service training. Vox was given the administrative responsibility for the multi-million kroner initiative, the 'Competence Development Programme' through which workplaces and providers of education cooperated to develop workplace learning, of these a large number of e-learning programmes.Generally, education in Norway is publicly provided and free of charge. Both on primary and secondary level there are some private school provision. Private schools has to have governmental accreditation which gives extensive state support but also by law gives no opportunity to make profit. Accreditation is only granted to schools based on alternative pedagogy, religion or philosophy of life.

Other private schools may or may not obtain state financial support. By law there is in Norway 100 percent coverage of kindergarten, primary school and secondary school places. All Norwegians have by law the right to secondary level education. However, there is a great concern that in secondary school the drop out is high, specifically in some vocational programmes, were well over 50 percent have not completed after 5 years.

There is no doubt that Norway has a great need for a highly educated work force. Norway is today the country in the OECD that has the lowest rate of workers in occupations that require the lowest level of skills and competence (Utdanningsdepartementet 2009).

On the other hand, Norway is around the middle when it comes to the rate of workers who have completed secondary school. In 2009 of the total work force 34 percent possessed a higher education degree, 44 had completed secondary school, and 21 percent primary school. In 2006 over 40 percent of the Norwegian population in the age group 25-34 years had completed higher education (among women 49 percent), compared to 25 percent as an average in OECD countries. The number of students in higher education has increased considerably from 74,000 in 1980 to 177,000 in 1995.

DISTANCE EDUCATION

The first correspondence school, NKS (Norwegian Correspondence School) was established in 1914. Before and during the World War II, a great number of correspondence schools were established, during the war as a result of closing of schools and detention of teachers. After the war an initiative was taken to establish a state correspondence school. This did not happen, but the preparations led to Norway being the first country to legislate distance education through the 'Act on correspondence schools' effective from 1949.

A special body (the Correspondence School Council) for the control and accreditation of correspondence schools and courses was established.

This probably led to the development of high quality distance education, cooperation between correspondence schools and the government and a large degree of credibility of distance education in the public. From 1975 the government introduced a generous funding scheme, supporting distance students by paying 80-100 percent of student fees.

This resulted in a large increase in student numbers. According to Karow (1977) in an international survey on private distance education Norway was the country in the world having the highest rate of distance students in the population (5%).

Since then the governmental financial support has continuously decreased down to less than 10 percent. This has had the consequence of student number in non-governmental distance education institutions and also the number of institutions has decreased considerably. In 2000 there were 12 distance education institutions accredited and receiving state support. Of these, NKI (Norwegian Competence Institute) represented more than 50 percent of the activities in the sector (SSB 2009). Regulation of private distance education was placed under the 'Adult Education Law' from 1993. One of the consequences of this was that the institutions were granted responsibility for teaching quality and that the Norwegian Association of Distance Education (NADE) in cooperation with the Ministry of Education developed its 'Quality Standards for Distance Education', one of the first quality systems for distance education in the world (Ljoså & Rekkedal 1993). Spring 2009 the Storting passed a new Adult Education Act that will terminate financial support based on teaching activities in private distance teaching institutions, but opens for financial support for technological and pedagogical development (Kunnskapsdepartementet 2009).

While distance education until 1990 was an area for private initiative, the Norwegian government in recent years has taken a number of initiatives to stimulate the development of distance education at universities and colleges. Based on a report on 'higher education on higher education towards 2000-2010 (KUF 1988) and a white paper to the Storting (KUF 1989) a project on establishing a national network of higher education institutions with a specific responsibility for distance education were initiated. To organize the work a special body was set up, the Norwegian Agency for Flexible Learning in Higher Education (SOFF). For more than ten years SOFF worked on stimulating the development of distance education, e-learning and flexible learning offered by higher education institutions. The main means were to distribute project money for distance and e-learning course and programme development.

The Confederation of Norwegian Enterprise (NHO), the main representative body for employers was not satisfied with the higher education institutions' ability to contribute to the need of the work force for taking higher education courses through distance education and flexible part-time

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solutions. In a provocative article in one of the main newspapers, NHO proposed that a Norwegian Open University should be established to compete with traditional institutions (Brækken 1997). This resulted in higher education institutions cooperating with employers' and employees' organization in 2000 to establish the 'Norwegian University Network for Life Long Learning' that should represent a network of dual mode institutions to develop and organize flexible study programmes based on ICT and online learning on the Internet. As the state body, SOFF, and the new cooperative organization in many ways had similar aims and goals, the executive boards took an initiative to merge. This resulted in the foundation of the 'Norwegian Opening Universities' (NOU) (a little strange English name for the Norwegian 'Norgesuniversitetet') in 2003 (see below).

During the process of distance education development in Norway there are some examples of initiatives that have been cancelled or failed to reach their goals. In 1977 'The Norwegian State Institution for Distance Education' (NFU) was set up. Relative to high ambitions on establishing a state institution for distance education on a broad basis in prior governmental propositions and reports (KUD 1971), it was established as a modest operation to cooperate with publishers, the Norwegian Broadcasting Corporation, distance teaching and other education institutions. During its life time until 2001 it conducted projects that produced a large number of multi-media distance education programmes often according to governmental priorities for marginal target groups, e.g. disabled persons and the sámi population.

There are in Norway some examples of high profiled projects with high investments of governmental or investor money on establishing infrastructure or business on e-learning that have experienced complete failure. Examples are the Winix project (state initiative to develop software for e-learning), IT Fornebo Knowation (investor initiative to establish a company to offer e-learning and distance education mainly via video conferencing), the Competence Network of Norwegian Business and Industry (establishing a national learning management system based on the American SABA software to organize e-learning for work place learning) (Keegan et al. 2007).

INFORMATION AND COMMUNICATIONS TECHNOLOGY-ICT

The Ministry of Government Administration and Reform (FAD) is responsible for national policies concerning ICT developments in all sectors.

Its department for ICT Policy and Public Sector Reform coordinates the work connected with the programme, 'eNorway', that is an initiative:

> *"... across political boundaries, to take part in a comprehensive ICT policy – to cooperate –secures a more effective utilisation of society's common resources as well as better services for citizens and businesses. Open standards and open source code is one example; to create a common ICT architecture in the public sector is another –while cooperation between the public and the private sector to increase the level of competence in the population and businesses is a third one."* (FAD 2009)

In line with e-learning in general, Norway, and Scandinavia, has a higher penetration of mobile phone subscriptions than most other countries. All the Scandinavian countries have more mobile subscriptions than inhabitants. Mobile communications increased with 21 percent from 2006 to 2007. The average Norwegian talks 2.4 hours by mobile phone during a month. 3 billion SMS/MMS messages were sent during the first half of 2007. The average Norwegian mobile subscriber sends 99 messages per month. The number of SMS messages increased 5 percent last year, while the number of MMS is much lower (totally 51 million during the first half of 2007) and shows less increase (2 percent). There is a clear tendency that the mobile phone takes over for ordinary telephone communication; two years ago mobile phone communication stood for 28 percent, in 2006 38 percent and first half of 2007 46 percent of all telephone communications (Aftenposten 2007).

eLEARNING AND ICT INTEGRATION

Within the educational sector a number of continuous efforts are taking place to stimulate the use of ICT in all sectors at all levels of education. In addition to the NOU, mentioned above, some examples are: The NOU, mentioned above, has three main function areas: *Knowledge development* related to distance education and ICT in education, *Project funding* to stimulate e-learning development and *Information and cooperation* between higher education and working life.

The NOU is the main centre for distance education and the use of ICT in higher education. The project funding scheme has resulted in the development of a great number of higher education courses and study programmes at a distance based on e-learning and the use of ICT.

While the former state organization, SOFF, specifically was oriented towards distance education, the NOU has a broader perspective on stimulating development of higher education applying ICT. According to a wide spread perception, the borders between on campus and distance teaching is diminishing as ICT is introduced on a more general basis, so that in principle both target groups can be reached by the same course (Kunnskapsdepartementet 2009). This author is not convinced that this is the case, as most distance students may have quite different needs for concerning course organization, structure and pedagogical solutions. Problems concerning teaching different target groups have been discussed by Tønneson (2005).

Partly as a result of the governmental initiatives through the NOU most higher education institutions offer some distance education courses. To organize distance education some institutions have established separate departments or business units. In spite of governmental policies and efforts, e-learning, online learning or distance education is still a very marginal activity of public higher education institutions, and, in fact, it seems that the Competence Reform of 2003 reduced attention towards external studies as a result of the greater pressure on quality issues concerning on campus teaching.

The UNINETT Group supplies network and network services for universities, university colleges and research institutions and handles other national ICT tasks (UNINETT 2009). The Research and Competence Network for ICT in Education (ITU) was established in 1997 as part of the Ministry of Education's action plan for 'ICT in Norwegian Education 1996-999" (KUF 1996).

ITU works to stimulate the competence and development of ICT in schools. This includes work directed towards primary and secondary schools as well as stimulating teacher education in the field (ITU 2009).

At regular intervals ITU carries out a survey on ICT competence and ICT applications in schools, the ITU Monitor (e.g. Arnseth et al. 1997. Within ITU the National Secretariat for Standardization of Learning Technologies (NSSL) is established as a national project to arrange for 'reuse of learning resources' through standardization (NSSL 2009). Utdanning.no is a national integrated portal with the aim of giving access to all relevant information on education, career development, learning and educational system.

The development of a coherent system for Course Description Metadata (CDM) has been important to exchange information of courses.

The Coordination Group for Portals in the Educational Sector (SANU) is an advisory and coordination body for the Ministry and other portal owners in education.

All the above mentioned organizations, UNINETT, ITU, Utdanning.no and NOU are owned or governed by the Norwegian Ministry of Education and Research. It has been decided to merge the three first of these, and the geographical location will be Tromsø in the north of Norway, where the NOU is already located.

CASE STUDIES

As discussed above, Norway has a long tradition in distance learning and has also been a leading country in developing e-learning/online learning. E.g. the http://www.nettskolen.com/in_english/megatrends/the_project.html) Mega trends Project (which identified and analyzed 'megatrends' in e-learning in Europe and European 'Megaproviders' of e-learning found that in spite of the low population of Norway (4.7 million), Norway included 4 out of 26 European Megaproviders (Arneberg et al. 2007, Paulsen 2007).

NKI Distance Education

NKI Distance Education (www.nki.no) is the largest distance teaching institution in the Nordic countries. NKI courses within higher education, secondary level education and vocational training. Originally a correspondence school, NKI was among the first institutions in the world to offer online education when it launched its in-house developed LMS for online distance learning in 1987.

The total numbers of student enrolments 2008 were approximately 8000 to about 23,000 e-learning courses (and about 4000 other distance learning courses). Presently (autumn 2009) NKI has approximately 11000 active e-learning students in the system. NKI has continuously developed new generations of its LMS and refined the LMS to satisfy the defined needs of distance teaching and learning. NKI operates a system were students can start at any day of the year and follow their individual progression schedule. To combine individual flexibility with support through voluntary cooperation NKI has developed a number of solutions for individual follow up and cooperation between pairs or groups of students.

NKS Distance Education (www.nks.no), the second largest distance education institution in Norway, also offers courses within higher education, secondary level education and vocational training.

BI Distance Education Centre
BI Distance Education Centre (www.bi.no) is a separate business unit for online distance education courses and programmes within BI (Norwegian School of Management), an on campus based non-governmental university college for business and management studies. The centre provides courses within higher education and vocational training. The centre had about 8500 course enrolments in 54 online courses in 2005.
Consequently, the institution is, as many public Norwegian higher education institutions, operating a dual mode system.

Sør-Trøndelag University College (www.hist.no).
Sør-Trøndelag University College offers courses at higher education level. In 2005, the institutions had about 2500 enrolments in 148 online courses.
Another institution that was considered as a megapovider in the Megatrends Project was the Norwegian Networked University (NVU)(www.nvu.no), a consortium consisting of 1 university and 5 university colleges. These were: Agder University College, Bergen University College, Nord-TrøndelagUniversity College, Stord/Haugesund University College, Sør-Trøndelag University College and University of Stavanger. The consortium used to act as a common provider. However, during the last years, the participating institutions have increasingly been operating as independent providers, and in 2005 they ceased to operate as a common provider. They nevertheless continue to cooperate on research and development related to online e-learning.

Thus, today the consortium has several activities aimed at building knowledge and competence within e-learning provision and has important dissemination activities related to this (for example a yearly conference). Without necessarily offering distance education courses, all higher education institutions in Norway (with exception of a few small privately owned ones) have implemented a virtual learning environment (VLE). Typically, a central part of a VLE is a commercial Learning Management System (LMS). Other systems are often linked with the LMS, e.g. administrative tools.

A large number of these institutions have more than 5000 students or 100 courses using a VLE (for example, in 2005 more than 15000 students were

connected to the VLE at the University of Oslo) (Arneberg et al. 2007, p. 61). According to the Ministry of Education (Kunnskapsdepartementet 2009) there were in 2008 registered approximately 5500 distance e-learning students in public higher education institutions.

According to NADE, it is assumed to be around 30,000 students in private distance education (of these assumedly 20,000 e-learning students). It should also be mentioned that the LMS provider, Fronter, is a major player in the Norwegian and international e-learning field. Established in 1998 Fronter claims 2009 to have 6 million users.

A majority of Norwegian schools and higher education institutions use the Fronter learning platform for course delivery and/or administration. Another Norwegian LMS provider, It's Learning, claims to have about 700,000 users in 10 countries.

Mobile learning may be seen as an extension of more standard e-learning solutions in education.

There are in Norway a number of examples of projects on mobile learning in Norway. Projects may have been initiated by industry with needs for flexible on the job training, universities, school authorities and distance teaching institutions (Rekkedal 2008).

RESEARCH AND EVALUATION

Norwegian higher education institutions and educational research centres have not generally focused on research on distance education, online education or e-learning. However, the Monitor surveys of ITU (Arnseth et al. 2007) and NOU (Wilhelmsen et al. 2009) deserve to be mentioned. Both organizations publish regularly research on ICT and flexible learning.

The publication series from NOU contains a large number of editions, e.g. one study concerned a 10 year evaluation of project work (Støkken et al. 2002) that criticized that evaluation information from the state financed projects was meager.

Also anthologies concerned with theoretical or practical project experiences are regularly published (e.g. Grepperud et al. 2005, Arneberg et al. 2006).NKI distance education has operated a research and evaluation department since the beginning of the 1970'ies.

A large number of evaluation reports and reports on distance education, online education and mobile learning have been published (www.nki.no) (See also this author's home page (http://home.nki.no/torstein)

SOME PRESENT ISSUES

It is a paradox that all political parties and governmental policies stress the importance of stimulating the development of e-learning and online distance education, and at the same time, in practice, financial solutions and regulations concerning distance education at distance teaching institutions and in higher education have not supported this goal.

In spite of the fact that the government supports the NOU, although budgets are not very substantial, financial regulations of higher education and the Competence Reform with emphasis on costly efforts to increase quality of on campus study, has worked in the opposite direction. In this author's view the situation for non-governmental distance education is even worse, as the new legislation, Adult Education Act, and financial solutions do not give priority to the adult distance student. Another negative factor is that from 2008 distance students taking courses that are not directly related to formal accredited school and college curricula in 2008 lost the right for study loans. Some of the effects are probably not actually foreseen by the politicians when they take the decisions.

While the recent white paper from the Ministry of Education (Kunnskapsdepartementet 2009) states the intention to focus on the development of higher distance education, the distance education institutions, which traditionally have been in the forefront of distance and online education developments, are largely neglected in the paper.

CONCLUSION

In this article we have tried to describe and discuss e-learning and online learning in Norway, perhaps with some special reference to distance education (as the special field of the author's research).

As a country in the top of the world nations concerning national finances, it is no wonder that Norway probably also is among the leading nations in the development of e-learning. Norway has a long tradition of high quantity and quality in distance education, mainly dominated by private initiatives. Since 1990 distance and online education have also been a focus area by many

higher education institutions.

Although, there have been some signs of decrease in attention and priority of distance education in higher education recently, there are signs in governmental policy that one will take actions to change this trend. Private providers of online education faces great challenges both in competing with state supported public institutions and in costs-efficiency as financial support from the government is more or less withdrawn. There has for many years been a tradition of cooperation between higher education institutions and private distance education institutions in offering online distance programmes. Whether new policies and funding schemes will support or work against such solutions remain to be seen.

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CHAPTER-25

eLEARNING IN OMAN
E-Learning from an Omani Perspective

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ABSTRACT

E-Learning has introduced new approaches of instructional delivery where the roles of teacher and student have significantly changed.

The case in Oman shows that the introduction of these approaches needs to keep pace with the demands of the times, but only the actual needs arising from social and educational context of Oman. Attention should be given to the socio-cultural understanding of teacher-student relationship in open technology-enriched learning contexts.

Omani educational institutions continue to review their policies and provision of e-Learning, considering technological alternatives for resolving some of the pressing issues posed by the actual needs. There is a need for coordination at the national level to create strategies and mechanisms and controls that ensure the quality of e-Learning institutions and outputs.

INTRODUCTION

The Sultanate of Oman, being a developing country, has gone through many social changes that have, in turn, altered the Omani society needs. Technology, on the other hand, has exerted a tremendous impact on the Omani societal setting and contributed to even more needs.

The above argument also raises another demanding social need. For example, the number of secondary schools graduates is increasing throughout the years and accommodating these ever increasing numbers forms a great challenge to the Omani higher education system.

The social demand to increase the higher education intake is obvious. Taking in consideration that these graduates are well tuned to recent technological

development, may contribute to alleviate this problem through instituting a quality technology enriched distance and electronic learning system where the higher education institutions could admit a certain number of students using this delivery method.

The Internet and other forms of e-learning platforms are being introduced and diffused into the Omani educational systems for teachers and faculty members to go online.

Versions of learning management systems such as WebCT, Moodle, and e-portals have been implemented at many educational institutions.

Strategies are being used to publicize and popularize e-learning and encourage lecturers to put their courses onlineIt is important to discuss lessons learned in the Omani context to set the stage for future development. Studies have been conducted on the perspectives of the early adopters and other dimensions of e-learning.

These shoe that the planning and organization of change in educational system takes time, tact, skills, experience, perseverance and much more. These and other challenges may have implications for other Arab educational institutions in the region as moves are being made by some of these institutions to collaborate in the pursuit of e-learning.

COUNTRY

The Sultanate of Oman is an Arab country in southwest Asia on the southeast coast of the Arabian Peninsula. Chief of state and government is His Majesty Sultan Qaboos bin Said Al Said who appoints the cabinet of ministers. The Council of Oman is made up of member of the "state council" and "consultation council" and assists the government in drawing up the general policies of the state.

The Council meets at the request of Sultan Qaboos, to study and discuss matters raised by him, taking all its decisions on the basis of a majority vote (MOI, 2008).

The Sultanate is divided into nine governorates and regions. Each governorate consists of states share common cultures, habits, Arabic dialects, history, traditional clothing and traditional occupations.

Figure 1.
A Map of Oman

The Ministry of Economy estimates that in mid 2006 the total population was (2.577) million. Of those, (1.844) million were Omanis. The population has grown from (2.018) million in the 1993 census to (2.340) million in the 2003 census. Omani citizens enjoy good living standards. Major source of income is oil. The other sources of income, agriculture and local industries, are small in comparison and count for less than (1%) of the country's exports. Industries contribute only with (4%), but there are governmental plans to increase this.

Oman has other mineral resources including copper, asbestos and marble. The Omani economy has been radically transformed over a series of development plans beginning with the first five-year plan (1976-1980). A vision of Oman's economic future up to the year 2020 was set out at the end of the first phase of the country's development 1970-1995. Vision 2020, outlined the country's economic and social goals over the (25) years of the second phase of the development process (1996-2020).

It has developed the following aims with regard to securing Oman's future prosperity and growth (MONE, 2007):

- To have economic and financial stability
- To reshape the role of the Government in the economy and to broaden private sector participation
- To diversify the economic base and sources of national income
- To globalize the Omani economy
- To upgrade the skills of the Omani workforce and develop human resources

The estimated workforce was (920,000) in 2002. A large proportion of the population were still engaged in subsistence agriculture or fishing. The skilled local labor force is small, and many of the larger industries depend on foreign workers who constituted over (80%) of the modern-sector workforce in 1996 (MONE, 2007). The Omani culture has its roots firmly in the Islamic religion. All Omanis are Muslims, but they are not only tolerant of the beliefs of different Muslim divisions, they are also tolerant towards believers of other faiths, who are allowed to practise their religion in churches and temples. Although Arabic is Oman's official language, the country has also adopted English as a second language (MOI, 2008).

EDUCATION

In 1970, there were only (3) boys schools with (909) students in Oman. On the the 2nd National Day on 18th November 1972, His Majesty Sultan Qaboos bin Said, talked about the importance of education emphasizing the need to "break the chains of ignorance. Schools have been opened regardless; the important thing is that there should be education, even under the shadow of trees".

The educational mutation was enormous. It accrues at (1000) schools and (469,849) male and female students in 1995. However, in that same year, the Ministry of Education prepared a report on how to implement new education reforms focusing on human resources development; and in 1997, the Minister of Education at the "consultation council" stressed the importance of the reform and shared with members the new changes which involve changing the structure of the Ministry, revising the aims of education, abolishing the afternoon schools, and providing a unified (10) year education system with

two cycles (4 years for cycle 1 and 6 years for cycle 2) by the government for all children of school age. It meets their basic education needs in terms of knowledge and skills, enabling them to continue their education and training according to their interests, aptitudes and dispositions. It also prepares them to face the challenges of present circumstances and future development in the context of comprehensive social development.

This basic education aims at an integration between theory and practice, thought and work, education and life comprehensiveness in developing all aspects of a whole personality the acquisition of self-learning skills in the context of a lifelong education inculcating the values and practices necessary for mastery and excellence in learning and teaching meeting the needs of human development in the context of comprehensive social development. The schools are furnished with learning resource centers, computer laboratories, and science, environmental life skills, music, and multi-purpose rooms (Al Balushi, 2000). It is envisaged that the Basic Education System will be expanded, while post-Basic education for the 11th and 12th grades will be upgraded to encourage the continuing development of skills, enabling young people to benefit from educational, training, and work opportunities schemes, after they have left full time education.

The Sultanate has over than (50) public and private higher education institutions. Those are regulated and, sometimes, administered by the ministries of higher education, manpower, and health. The Ministry of Higher Education continues to send students on scholarships abroad. There are currently Omanis in Australia, New Zealand, the United States, the UK, France and Germany.

There are two categories of sponsorship, full scholarships, and partial scholarships. In 2007, five colleges of education were converted into colleges of applied sciences with language laboratories along with information technology centers were installed at each college. From the moment the door was first opened to private investment in higher education the sector has seen steady progress. The Accreditation Council was set up in 2001 to regulate the accreditation, assessment and quality control of the Sultanate's higher education institutions and several plans and programs have been drawn up to guarantee the standards of the higher education sector.

The government offers extensive facilities and support to encourage the growth of private higher education institutions.

Non-government universities receive grants totaling (50%) of their paid-up capital, to a maximum of (USD8) million (MOI, 2008).

Sultan Qaboos University (SQU) received its first student intake in (1986) and endeavored to establish itself as one of the Sultanate's academic and scientific pioneers.

Today SQU offers a wider range of opportunities for general secondary certificate graduates than ever before. The University has ten colleges and seven research centers, and awards bachelors and masters' degrees, as well as higher diplomas and doctorates. Scientific research is devised to upgrade the quality of education offered by at the university, while enhancing its contribution to the sciences and human knowledge. In 2005, a national scientific research council was also established to reflect official recognition of the importance of scientific research both for the national economy and the entire society in a sustainable manner. A science and technology policy that consists of clear strategies and a detailed road map to ensure its successful implementation of research and development was formulated (MOI, 2008).

DISTANCE EDUCATION IN OMAN

Recently, most of the Omani educational institutions at all levels have adopted the concept of electronic learning in which educational and training programs are presented to the students at a distance over the internet. Students who are part of this scheme either study alone or with the assistance of a teacher. These programs depict some of the early adopters of distance learning systems in the Sultanate.

The Ministry of Education holds the view that distance education is bringing new types of learning to isolated students and, where trained teachers in specialized subject areas do not exist, distance education represents a lifeline of hope. However, one of the most crucial aspects of the implementation of sound plans involves the development of trained teachers who know not only how to operate computers and other technology, but also are experts at how to use technology to help students to learn more easily and more effectively. Planning for ICT must be carried out in a responsible way to ensure that its implementation is not short lived, but sustainable over a period of time. While young students in Oman are encouraged to build virtual worlds, older students learn to create animations, web pages and to program what the computer does using advanced programming languages (MOE, 2008).

On the other hand, some Omani higher education institutions are affiliated with overseas universities in India, USA, UK, and Australia through which some provide their students with distance learning courses and programs. For example Virginia Tech act as educational adviser, and a partner to establish a new university that will focus mainly on science, business, and engineering, but once it gets off the ground, there are hopes for a liberal arts curriculum outside of the core course that it's currently prepared to offer (Prendergast, 2008).

The Omani branch of the Arab Open University is a full-fledged distance learning higher education institution. Its case will be discussed later. The Ministry of Higher Education has also approved several accredited distance/online universities for Omani students to study through. Those include a list of Arab, regional and international universities. Yet, with the increase of students' numbers graduating from the secondary schools, access to higher education is indeed one of the main difficulties that must be actively dealt with (Al Musawi, and Abelraheem, 2004).

Distance learning materials and software used in traditional and electronic formats are copyrighted. Copyrights in Oman are protected under Royal Decree 37/2000. Protection continues for (50) years after the author's death. Financial rights such as royalties are afforded under this law. The authors enjoy the right to have their work published in a pen name. Infringement of copyright is punishable by the Omani law. Ministry of Commerce and Industry in association with World Intellectual Property Organization (WIPO) organized an International Seminar discussed the theoretical framework of intellectual property and its role in trade and commerce within the Arab world (ITA, 2007).

TECHNOLOGY AND ICT

The Sultanate's strategy to fully liberalize the communication sector has provision to allow private operators of internet services. Oman Telecommunication Company (Omantel), the government agency in-charge of communications in the Sultanate, was privatized in March 2002. It currently provides the countries fixed-line and internet services. It has completed several fiber optic projects in the interior regions of the Sultanate and linked the remote islands with microwave link.
Wireless connectivity for broadband services is available for adoption in Oman. Currently the mobile communication service providers offer a

wireless connectivity for accessing the Internet. Such a service connects to the Internet, using a WiFi enabled laptop, PDA or mobile device to make it possible to conduct remote meetings and tele-presentations as well as process emails (ITA, 2007). Telecommunication Regulatory Authority (TRA) is a governmental agency established in 2002 to regulate telecommunication activities at the national level (TRA, 2006).

Other regulatory bodies and strategies were formed to introduce e-Government and create a 'digital society'. In 1998, the National Information Technology Committee was set up to oversee the development of the Sultanate's information technology sector and to work towards an e-government initiative. This committee set up the 'Information Technology Task Force' as the technical action group comprising representatives of the competent departments and bodies and the National Information Technology Strategy was launched in November 2002.

A plan of action to be implemented by the Information Technology Technical Secretariat was compiled. It is the first major step in the country's ambitious plans. Information Technology Authority (ITA) was then set up in 2006 as an autonomous legal body affiliated to the Minister of National Economy. ITA serves as a competency centre on best practices in e-Governance and in harnessing information and communication technologies (ICT), thereby offering efficient and timely services, integrating processes and improving efficiency in service delivery.

E-Oman, the digital society plan of action, incorporated a range of initiatives towards provision of government services through electronic channels, building ICT capacity within various segments of corporate sector and the common public. E-Oman comprises of a wide range of initiatives and services that are designed and created to improve the efficiency of government services, enhance the activities of businesses and empower individuals with skills and knowledge, to meet society's needs and expectations and to direct Oman towards becoming a Knowledge-based Economy.

The implementation of the strategy began in May 2003 with the following focus areas: streamlining government services to citizens and business, creating and nurturing knowledge-based industries developing a local ICT sector, supporting a better competitive environment, providing employment for Omani youth, enabling better healthcare, improving educational opportunities, supporting tourism sector, enhancing social development using

it, making Oman a more attractive destination for foreign investment and conducive for business. Knowledge Oasis is the Information Technology park of Oman.

It is a public-private sector led initiative committed to creating a multi-stakeholder environment. In such an environment, entrepreneurs, small and medium-sized enterprises as well as established multi-nationals can innovate and nourish the ICT sector within the region. The park now hosts two dedicated technical colleges to groom and nurture future talents and upgrade the manpower skills required for various businesses. The National Information Technology Training and Awareness Initiative is a nation-wide initiative aimed at developing ICT skills capability and increasing ICT awareness within the government and the community. The Government Information Technology Training project aims to train and certify all civil service employees during the three year period 2007-2010. The Community Information Technology Training project aims to set up community technology learning centers throughout the country. The primary purpose of these centers will be to reduce computer illiteracy and bridge the digital divide by providing free or low cost information technology education to the community. ITA launched pilot programs in the first and second quarter of 2007 in order to prepare a framework for national implementation of community information technology training (ITA, 2007).

In response to academic and training needs, Omani specialists in educational and information technologies have formed a professional society, the Omani Society of Educational Technology (OSET). As an ICT in education expert group, OSET, which was formally inaugurated in 2006, aims to: (1) conduct research on educational technology impact on education in Oman and the Gulf states; (2) present the society role and emphasize its contribution to the socio-educational developments; (3) form a niche to the Omani/Gulf specialists and develop their experiences; (4) keep abreast of the technological innovation in education and disseminate their applications within the Omani society; and (5) link with similar associations in the Gulf and other parts of the world. OSET has conducted many workshops and seminars and plans to have its first international conference in March 2010. It also plans to issue a specialized reviewed journal of its own (OSET, 2009).

In 2006, penetration levels of ICT services in Oman show that the number of internet subscribers is (63,332) with dial- up subscribers at (48,770), DSL subscribers at (13,360), leased Line Subscribers at (246), and other internet services subscribers at (956).

A gender based ICT usage study was conducted by the TRA and SQU's telecommunication research center revealed that the male-female ratio is almost 1:1. The dominant age group in the population pyramid is between (15) and (64) years of age. The results showed that in Oman males normally spend more on ICT than females and that around (54) and (46) per cent of male and female respectively use internet in the Sultanate. The demand and access to the internet service is much related to the availability of means of access such as computers, fixed line and public access centers such as internet cafes. It was also evident from this survey that on an average an Omani individual spends (USD7.8) per month for Internet access (International Telecommunication Union, 2006).

In education sector, ICT was first introduced into mixed gender basic education first cycle schools in September 1998. Seven computers were initially located in each school's learning resource centre (LRC). All students in grades one to three visited the LRC once a week, while this was increased to two visits a week for grade four students.

In 2003, computers began to be introduced into the teaching classrooms. Two laptop computers were used in these classrooms as one of the sets of resources through which groups of students rotated. While some commercial software was employed, most of the activities are created locally by curriculum developers and classroom teachers.

The first batch of second cycle basic education schools was opened in the 2001-2002 school year. Second cycle covers grades five to ten and in most cases, boys and girls attend separate schools. ICT was from the very beginning considered as an important part of the new basic education program. Spiral information technology curriculum has been introduced to provide opportunities for students to gradually become aware of the many ways in which computers and their peripheral components can be used as a personal tool to assist them in their learning and their future lives. Every year a new ICT grade level curriculum and support materials were introduced and an ICT curriculum is now available for all grade levels in second cycle schools. Students in second cycle schools have greater access to technology than students in first cycle schools.

At each grade level in second cycle, students have two ICT classes every week. Teachers encourage students to use laptop computers and LCD projectors to make presentations in subject classrooms.

In addition, many of the concepts and skills introduced in the ICT curriculum are complemented by curriculum units in other subject areas. Collaborating with other students and out-of-school experts is encouraged through dedicated software and troubleshooting strategies for hardware and software are explored. Information literacy and information and communications technology knowledge, skills and values comprise the expected outcomes of the program. Continuous assessment and the evaluation of student progress are achieved through observation, interviews, performance tasks and analyzing student products (MOE, 2008).

In higher education, an Internet-based admission service has been rolled out from the higher education admissions centre of the Ministry of Higher Education for the student fraternity.

This online service improves the experience of the students seeking admission into over (50) different public and private higher education institutions in Oman. Apart from increased efficiency in processing student applications, the system also ensures fair and equal treatment for all applicants while enabling secure electronic data transfer for better accuracy and transparency. Many higher education institutions have equipped their campuses with office and portable computers, LCD data shows, Internet and Intranet links, e-mail facility, plasma screens, multimedia laboratories, and learning management systems (LMS) (Al-Musawi, 2007).

For example, the Ministry of Higher Education has initiated recently a restructuring program aiming to provide the existing six colleges of applied sciences with more applied information technology.

A particular emphasis is directed towards improving the learning methods by developing and implementing a unified LMS which serves the new form of these colleges. Such system is particularly intended to improve the e-learning skills in the six colleges (Gattoufi, Al-Naabi, and Gattoufi, 2007). Some of these institutions own their videoconferencing facilities.

They usually have their own service centers of educational and information technologies with skilled technical staff to provide the required maintenance of hardware and systems. Some of these centers have trainers and designers, and run in-house training programs for the faculty members and students. In this regard, Al Musawi (2007) study's findings showed a tendency for future expansion with less expensive technologies and the need for training.

The study found that there is a need to support higher education institutions with technical and human resources to increase and activate the use and number of new instructional media and equipment.

E-LEARNING AND INTEGRATION

E-Learning implies making use of ICT to develop student learning. It becomes one of the important applications and an innovative way of using these technologies in education and training systems. "With the advent of the Internet and e-Learning methodologies and technologies, providers of education (K12 and higher education) and training are creating e-Learning materials to fulfill the demand (Khan, 2005: 3). The technological developments, especially concerning the possibility of communicating directly and creating groups of virtual interaction, and the introduction of multimedia, audio-conferencing and remote imaging; all this has led to the emergence of a modern e-Learning with the most prestigious universities in the US and Europe transfer from their traditional to e-Learning and distance learning methods (Gaddaa, 2003). E-Learning content is based on the cognitive structural theory (constructivism). Research indicates that the new direction of research should be about the recruitment methods and the design of "virtual teacher" by the "effective teacher" to attract the attention of article about student learning on the Web (Marriott, 2004).

The Ministry of Education is continually developing and enhancing its e-learning environment. Classrooms are being linked to the new world of learning possibilities available through Intranets and the Internet. Both public and private schools are rapidly adopting technology to create a comprehensive and connected learning community.

A part of the MOE reform of education are LRCs with the mission to provide an educationally sound information literacy curriculum for developing the students of Oman into life-long learners, ones who would be able to use learning throughout their lives as a way to solve problems, act ethically, plan for the future, and prepare for change (Moore, 2004). In addition, a course on refining research skills has been made compulsory for all students in grades eleven and twelve where ICT skills play a vital role in student investigations to identify patterns in the data and construct new knowledge.

Through a project with UNESCO, a virtual library of learning materials is being developed to aid blind and deaf students.

Students who cannot attend one of the special schools will be able to access this bank of voice and image enhanced materials over the Internet. Secondary students who have not come through basic education are learning basic computer skills through the International Computer Drivers' License (ICDL) program to learn basic IT skills before entering a collegiate study program. As of date approximately (370) accredited school-based training centers have been established with ICDL certified teachers. Over 100,000 students have been trained and tested at about (18) ICDL accredited testing centers (MOE, 2008). In addition, a comprehensive educational portal has been designed by the Ministry of Education and it is currently at the pilot stage. The portal facilitates a centralized electronic archive of information about students studying under the

Omani educational system at both public and private schools. Interactivity between administrators, teachers, students, and parents occurs through the Internet, email and SMS. Due to the integrated data management, students shall be able to transfer the classrooms as well with improved quality of learning experience (ITA, 2007; Al Shanfari, 2007).

Although most teachers who initially worked with students in first cycle schools were very committed, they tended to have limited experience of using computers and were drawn from other subject areas.

All of their professional development came through courses and workshops organized by the Ministry of education and delivered either centrally or regionally. While most of these teachers had good teaching and assessment skills, they often lacked knowledge and skills related to the use of computers, both personally and professionally, and on ways in which computers can enhance student learning.

In the second cycle, most ICT teachers in were graduates of the new teachers colleges in Oman and came with a combined specialty in mathematics and computers but had only limited practical experience in teaching and assessment, little understanding of the concept of integration of ICT into the curriculum, and no experience with graphics software.

A cascading model of professional development was developed with regional core teams attending courses and workshops in Muscat and then returning to the regions to pass on the knowledge and skills acquired using some of the instructional strategies and learning materials provided (MOE, 2008).

In 2005, the college of education at Sultan Qaboos University has opened a new department offering a bachelors degree in instructional and learning technologies to prepare information technology teachers and LRC specialists. The first batch of graduates from this department joins the service in the schools in 2009 (Al Musawi, 2010).

The Ministry thinks of applying a comprehensive plan of 'school of excellence'. The concept is proposed to:

- pilot new hardware and software technologies in education;
- model ICT in education programs;
- pilot new e-content and digital interactive materials;
- collaborate with universities to develop and evaluate new teaching methodologies; and
- provide regular ICT trainings.

The implementation of these objectives starts by establishing three schools (one from each grade level cycle 1, cycle 2, and post basic) in 2013 in each educational region with a total of 33 schools of excellence where each school has highly developed technology classrooms, a technology specialist, a well equipped LRC.

The Ministry of Education has to develop partnerships with technology companies and universities to pilot, evaluate, and develop new teaching strategies and methodologies that use ICT in education and expand the new teaching strategies and methodologies of the school of excellence to other schools in Oman so they become training centers for teachers (MOE, 2009).

In higher education, technology has transformed the practice of Omani institutions which is set to modernize her education to align with the rest of the world. Several issues are receiving attention as policies are formulated and the requisite foundations are being laid in preparation for the national distance education program in Oman. While these institutions are not oblivious of the advantages of e-learning, many Omani educators will be better convinced with more research evidence on the quality, security and credibility issues of e-learning.

The Omani concern for comparability of standards with the traditional system is a genuine one which must be attended to before e-learning can be developed, disseminated and diffused into higher education on a large scale (Al Musawi and Akinyemi, 2002).

CASE STUDIES

Case 1: Sultan Qaboos University
At Sultan Qaboos University, the centre for information systems has issued the university computing policies and security, equipment and information protection rules to guide the clients on how to use on-campus information technology and systems (SQU, 2002A and 2002B). They regulate the use and abuse of the resources including hardware, software, networks and any other support facilities. These documents are available online. Sultan Qaboos University, also hosts the CISCO regional academy for CISCO training programs. Other higher education universities host such e-learning certification programs and operate under the regional academy at SQU. This has expanded the opportunities for students and employees to gain vendor based certification through e-learning mode (ITA, 2007). There are several students' societies at SQU working in the fields of educational, information, and communication technologies at the university and colleges levels. Those hold many annual scientific activities and exhibitions showing the students' products, thoughts and innovations. Sultan Qaboos University has undertaken number of research projects based on specialized areas of e-Learning. The research has been funded by SQU, private organization and some external sponsors.

1. Some of these described the development of distance learning project for common courses (Al Kindi, Al Musawi, Eltahir, et al., 2006). Another research was conducted by Rawahi (2006) on e-Learning evolution at the college of medicine and health sciences. It concludes by presenting the college visions and directions on the implementations of information technology infrastructure.
2. Faculty members use the Internet in their instruction, but it was found that web-assisted instruction is equally effective as f2f instruction in students' achievements (Al Musawi, and Abelraheem, 2004).
3. Research also conducted in terms of LMS. Akinyemi (2002) wrote that the adoption of Web-CT marks the beginning of a new era of instructional delivery mode at the Sultan Qaboos University but the challenges of the new technologies are being surmounted. However, the positive attitude of faculty across programs towards e-learning as demonstrated through their willing attendance of presentations and workshops is a reliable proof of interest in technology adoption. A study conducted by Al-Khanjari, Kutti, and Dorvlo (2005) indicate that the Web Based Instruction (through WebCT) classroom

education with the use of an efficient course management system is a good alternative for SQU lecturers. In a follow-up study Al-Khanjari, Kutti, and Ramadhan (2005) found that WebCT in conjunction with classroom education can provide a feasible platform particularly for SQU undergraduate students. Students trained in the e-Learning will be life-long learners and able to apply the acquired training in solving problems in their workforce. Naqvi (2005) study has too showed that SQU students who were exposed to the WebCT online learning environment, had positive attitudes toward WebCT and in turn had better learning and understanding of the course material because it helps them in better understanding and learning the course material. Hatem, Ramadhan, and Neagu (2005) suggested a practical method towards semantic web application to e-Learning along with its design framework to ensure that SQU develops a repository reflecting the actual data and the semantics of all of its resources including courses on WebCT and materials of the Visual Library.

4. Research in the field of professional development shows found that there is no structured form of program or plan that has a clear vision, goals, and strategies for educational technology faculty development at the college level (Al Washahi, 2007). Al-Musawi (2008) reiterated that professional development workshops at the university level, although satisfactory to an extent as perceived by the faculty members, need improvements in terms of planning, implementation, and evaluation.

Case 2: Arab Open University, Oman

The Omani branch of the Arab Open University (AOU, 2009) is a full-fledged distance learning higher education institution attempting to promote an open system of higher education that provides open opportunities of studies for professional development and lifelong learning and to produce graduates who are capable of embracing current and emerging technologies, and who are competent in working in a global economy. AOU branch started its operation in 2007 after being granted approval by Ministry of Higher Education. The AOU with its emerging information technology platforms has opened new learning opportunities.It offers bachelors degree programs in business, English language, and in information technology for those in the upper age group, in employment, and belonging to the lower and middle income strata of the society. The university used an open system, good quality subsidized higher education, and flexible mode of learning. Recent research shows that AOU students and workers are aware of the use of the distance learning system and that they are highly satisfied with the flexible

methods of delivery (Al Khadouri, Al Rajhi, Al Nasri, et al., 2009; Al Balushi, Al Suleimani, Al Jahwari, et al., 2009).

Case 3: Huda Private School
Huda Private School (ITA, 2007) is the first electronic school in the Sultanate which is completely networked with about (50) wireless access points. Both the teacher and the students use multimedia laptops which are connected to the school's intranet website and to the Internet. The school's intranet hosts e-books and other software which enable the students to use their e-pens to write on their monitor and transfer these to their electronic exercise books. Student registrations, attendance recording, exam scheduling, grading, annual results compilations, etc. are centrally managed and information is made available to both teachers and parents. In addition the SMS technology is used send alerts to parents about the progress of the student. The inter-connectivity also enables ministry circulars, internal bulletins, correspondences between teachers and students and activity photographs are exchanged through electronic networks thus saving time and increasing efficiency dramatically.

ISSUES OF E-LEARNING

Research has identified different issues. Behl, Fitzgerald, and Vrazalic (2007) found that the four main areas to address in relation to the use of online delivery are student characteristics, ICT environment issues, and support for students and authentic activities. Akinyemi (2003) examines the perspectives of some Omani students on web based learning and possible cultural interference and found that results are yielding evidences of the need for further research in this area as the interactivity factor in web based learning poses an obvious threat to the Arab culture and religion in view of some of the foregoing learner reactions and the uncontrollable inevitable potential of virtual learning. Hall (2009) reported that if online learning is to be used in Oman then the effect of cultural values and preferences must be considered in the way that learning is designed; this emphasizes the necessity of using design principles that account for culture and enable the challenges of quality and access to be met more effectively. Al Musawi, and Abelraheem (2004) concluded that e-Learning standards must be set before it can be used widely in Oman. An increase in the human and technical resources should be sought and more technical staff is required for employment. Omanis should be sent abroad on scholarships in order to be able to run bachelors and masters' programs preparing young Omanis in the field of e-Learning.

This means graduate and post-graduate programs should be opened locally (Al Musawi, 2010). Al Gharbi, Al Hatali, and Hatem (2004) supported these conclusions and called for greater cooperation and coordination between higher educational institutions and other government and private agencies to help fill the gap between demand for information technology specialists and their supply by higher educational institutions. Higher educational institutions should also benefit from the expertise of the Sultan Qaboos University academic and information technology technical staff.

CONCLUSION

It becomes obvious that as the number of students enrolled increases at Omani educational system, the need to offer additional resources and facilities increases too. Academic programs could be offered through e-learning in addition to the traditional education. Research findings show that there is awareness among Omani teachers and faculty members to expand on new e-learning and digital multimedia technologies and that their perceived values of the technology are tangible. However, the Omani concern for comparability of standards with the traditional system is a genuine one which must be attended to before e-learning can be developed, disseminated and diffused on a large scale. This addresses one of the most important questions faces the implementation of e-learning: the question of quality. E-learning quality issue need to be resolved as the continuing rapid growth in students' number graduated from Omani secondary schools poses major strategic challenges for the higher education system.

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CHAPTER-26

eLEARNING IN PALESTINE

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ABSTRACT

No doubt that globalization and rapid changes occurring in the world have thrown its impact on education and human endeavors. Both training and education are considered as a lifelong experience for workforce cross the world. Palestine, in fact, is part of the sweeping globalization and transformation, regardless of its difficult political context and might be because of it. Palestine opened itself up to many international interventions and programs. Hence e-learning is needed and the documentation on e-learning is also needed.

There is a very big need for this chapter about the Palestinian environment as it is achieving two goals. The first goal is to provide information data that sheds light on what is going on in Palestine regarding e-learning. This goal will clarify how information technology, e-learning programs, electronic libraries, twining programs, international courses, worldwide research initiatives, electronic homepages, and other tools of communications, are developed in Palestinian schools and universities. The second goal is to explore challenges and obstacles faced and institutions' strategies of coping with these challenges as well as the national policy to develop learning at this particular context.

COUNTRY

Palestinian covers 10,163 square miles or 26,322 square kilometers. It is one of the smallest countries in the Middle East, and most of its territory remains under Israeli occupation and control. In ancient times, the area called Palestine extended roughly from the Mediterranean Sea in the west to just beyond the Jordan Valley in the east and from the mountains of Lebanon in the north to the Red Sea in the south. In other words, in today's terms, it

included not only Israel and the Palestinian territories but parts of Jordan, Lebanon and Syria. It was at the western end of the Fertile Crescent in which the earliest civilizations flourished and traces of a Palestinian culture have been found that pre-date 6,500 BC (Geography of Palestine, 06.01.2010). Under the British Mandate, until the establishment of the Kingdom of Jordan in 1922, Palestine included Transjordan. Palestine as a political entity was created after the Second World War as a consequence of the 1948 Palestinian/Jewish War and UN partition. The boundaries of the country are never constant due to ongoing political negotiations between Israel and the Palestinian Authority and due to political turbulence.

Figure 1 shows the map of Palestine. The map highlights West Bank and Gaza which constitute the Palestinian Authority territories. The rest of Palestine is currently recognized as Israel.

Figure 1.
A map of Palestine

As Figure 1 shows, 'Palestinian territories' is one of a number of designations for today's Palestine. The Palestinian territories are composed of two discontinuous regions whose final status has yet to be determined, the West Bank and the Gaza Strip. The West Bank is situated west of the Jordan River and the Dead Sea, and east of Israel and contains Jerusalem, Ramallah, Hebron, Nablus, Jenin, TulKarm, Jericho and Bethlehem. The Gaza Strip is bordered on the south by Egypt, on the West by the Mediterranean Sea and on the north and east by Israel and its main city is Gaza. The territories, which were originally contained within the British Mandate of Palestine, were captured and occupied by Jordan and by Egypt in the late 1940s, and captured and occupied by Israel in the 1967 Six-Day War. Including those in the disputed territories, the population is around 4 million there are approximately 2.4 million Palestinians in the West Bank and 1.4 million in the Gaza Strip. In 2008, 38% of the West Bank residents were aged between 0-14, 58.3% were in the 15-64 age group and 3.6% were 65 years and over. In the Gaza Strip, 44.7% were in the 0-14 age group, 52.7% in the15-64 age group and 2.7% were 65 years and over (Wikipedia, the free encyclopedia, 06.01.2010).

Due to the Arab-Israel conflict there is some debate about the recognition of the state of Palestine. Several views regarding the status of the State of Palestine coexist. Thee are more than 100 states recognize the state of Palestine, 20 more grant some form of diplomatic status to a Palestinian delegation, and Palestine is also represented at international level in different organizations such as sporting events, including Olympics and Paralympics and films from Palestine have won awards at international events such as the Oscars.

The Oslo peace process obligated Israel and Palestinians to work towards a two-state solution but there are currently significant areas of disagreement over the shape of any final agreement. Following the signing of the Oslo Accords in 1993, portions of the territories have been governed in varying degrees by the Palestinian Authority. Israel does not consider East Jerusalem (annexed in 1980) or the former Israeli-Jordanian no man's land (annexed in 1967) to be parts of the West Bank.

Although this has not been recognized by any other country Israel claims that both fall under full Israeli law and jurisdiction as opposed to the 58% of the Israeli-defined West Bank which is ruled by the Israeli 'Judea and Samaria Civil Administration' (Wikipedia, the free encyclopedia, 06.01.2010).

The culture of the Palestinian society is similar to its neighboring countries, Syria, Lebanon and Jordan. Arabic language is the main language in Palestine and the Islamic religion is the main religion there. Ninety-eight percent of the population is Muslim, the majority of who are Sunni. The other religions practiced in Palestine are Druzism, Christianity, Samaritanism and Judaism. The customs, religion, languages, literature, art, costumes and music are essentially Arabic. In addition, the Palestinian who live in Israel and the countries of the Diaspora still have the Palestinian culture despite being separated from the territory of Palestine.

Gaza Strip which lies on the coast of the Mediterranean Sea is only 6-12 kilometers (4-7.5 miles) wide and about 41 kilometers (25 miles) long is mostly sandy areas that are flat. The annual rainfall does not usually exceed 400 mm and the arable land is a only 13%. The climate of the West Bank varies considerably based on altitude and location, with most of the rainfall in the north and west.

After the signing of the Oslo Accords in 1993, Palestinians began taking control of their own economic destiny. Positioned at the heart of the Middle East, on the coast of the Mediterranean and constituting a sizable portion of 'the land of milk and honey', Palestine has inherent economic potential. However, as Halabi (Halabi, 2009) observes, the Palestinian economy is adversely affected by the Israeli occupation, lack of a contiguous Palestinian land mass, the political and economic division of the West Bank and the Gaza Strip, physical impediments and the lack of access to economies of scale, natural resources and an investment horizon.

EDUCATION SYSTEM

As a result of Oslo agreements, the Palestinian National Authority in 1994 and the Ministry of Education and Higher Education (MOEHE) were established after 27 years of Israeli military control of the Palestinian educational system. Hence, responsibility for education was assumed by MOEHE. Prior to 1994

Palestine had never had its own school curriculum, so a national education system became a high priority for MOEHE. A first five-year plan was designed and despite the shortages of school buildings and teachers, the Palestinian Authority and the Ministry firmly committed to providing all Palestinian children with sufficient teachers, classrooms, books and quality services.

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In 1996 higher education was entrusted to a separate Ministry of Higher Education and Scientific Research but a ministerial reshuffle in 2002 resulted in the re-merging of ministries into the current MOEHE.

Government expenditure on education is around 20% of total budget. International organizations and donors contribute to funding the Palestinian education as well. The MOEHE's 2008-2012 Education Development Strategic Plan has four goals: to increase access and retention rates of school-aged children; to improve the quality of teaching and learning; to improve the financial and management systems used; and to gradually change the higher education sector from supply-oriented to demand-oriented and guarantee more compatibility between higher education outputs and the labor market needs.

Schools
Palestinians have one of the highest ranks in the interest in achieving educational degrees, Palestine participates in many international educational activities including the Education for All (EFA) movement, and Palestinians enrolment rates in EA are relatively high by regional and global standards. According to a 2003 survey, 60% of 10-24 year olds indicated that education was their first priority. However, the eradication of illiteracy is high on the Ministry's agenda, especially in the rural regions. The overall national literacy rate is 91.2%; amongst 15-24 year olds it is 98.2%, amongst males aged 15 and over it is 96.3% and amongst females it is 87.4%.

Education in the Palestinian territories is centralized around curriculum, textbooks, instructions, and regulations. The MOEHE publishes textbooks for all levels which are available online in the Palestinian Curriculum Development Center Website (www.pcdc.edu.ps).

The schools system comprises 1.1 million students, 30,000 teachers and 2,000 schools -30% of which are for boys, 35% for girls and 29% are co-educational. Pre- school learning (Kindergarten) is available for two years. Compulsory basic schooling is Grade 1-10. General secondary schools and a few vocational secondary schools teach Grades 11-12. The United Nations Relief and Works Agency for Palestine Refugees (UNRWA), which has played a major role in Palestinian education over the years also runs schools but these only offer Grades 1-10, not Grade 11-12 secondary education. The vocational schools, including two agricultural schools, now allow entry into certain courses by female students. There are also over 100 Christian schools.

Teaching is considered to be most pious professions and religious subjects incorporated in the schools curriculum help to develop the students spiritually. The schools also offer sound education in the humanities and science. The Ministry also expended great efforts on teacher training and introducing the latest pedagogic techniques, including preparing teachers and pupils for the age of information and communications technology. Introducing computers to schools at all levels has been a primary goal of the ministry. To date there are 622 computer labs in schools. Recognizing the importance of languages, the Ministry has also introduced foreign languages other than English in the curriculum. There are currently 14 schools teaching French and two schools teaching German. The MOEHE also supports extracurricular activities such as cultural, artistic, and social events and summer camps.

However, resources are limited, conditions are difficult and Israeli incursions into Palestinian cities and towns have resulted in tremendous damage to schools and classrooms, in some cases rendering them unusable. The Ministry itself has sustained massive destruction of its hardware and software, requiring great expense and effort in restoring its database and replacing stolen and destroyed equipment. Furthermore, the increasing numbers of students calls for the provision of thousands of extra classrooms, so the Ministry is constantly waging an uphill battle to achieve its objectives. Insufficient government funding and the loss of revenue base from fees causes over-crowding and difficulties in securing even the most basic schools' supplies and materials. There is also inequity in resource allocation as between the West Bank and the Gaza Strip.

Counseling is vital for children with special needs and those experiencing psychological trauma and there are now 511 counselors providing services to 950 schools but far more are needed services. Long-term plans are also hindered by the Israeli occupation and repeated incursions which place restrictions upon movement and result in students missing out on their schooling as a consequence of curfews and closures. With the deteriorating economic conditions, the Ministry also faces the problem of students dropping out of school before reaching the mandatory tenth grade and female students dropping out in the upper grades due to family pressure or early marriage. But despite all of these drawbacks, the Ministry is forging ahead with its plans to upgrade the education of all Palestinian citizens and the teachers are devoted to helping all children, regardless of geographical areas, income groups, or circumstances.

Technical and Vocational Education And Training

When Palestine became responsible for its own education system, it inherited a run-down *Technical and Vocational Education and Training* (TVET) system that was only capable of training 3% of the student population a year and producing low skill workers. It was staffed by teachers with little or no training, Palestinian educational system's curricula at least 25 years old, and the equipment and buildings were outdated or obsolete. Today, there are 11 technical colleges (4 governments, 2 UNRWA, 4 public and 1 private) mainly offering 4-year programs and 19 community colleges (1 government, 9 public, 2 UNRWA, and 7 private) mainly offering two-year diploma courses in technical and commercial subjects. There are also 15 secondary industrial schools, all but three of which are government funded, two private hotel training schools, some Ministry of Labor and Social Affairs community colleges, and a National Institute of Information Technology which currently has 450 enrollees. The Ministry of Ex-Detainees also offers TVET to around 1,000 mostly male students. However, the demand for most of the vocational training courses is weak. Manual skilled occupations continue to have low status and only the least academically able students tend to enroll at these institutions. Therefore the majority of the colleges have low student-teacher ratios and high unit costs.

Higher Education

Demand for higher education in Palestine has increased significantly in recent years. Student enrolments increased more than 300% between 1995 and 2006. The higher education system is in serious need of development if it is to satisfy the increasing demand from the growing population of secondary education graduates and meet the changing demands of the global economy. However, the current financial in Palestinian universities is bad due to political circumstances. Public funding for the universities is weak and the system is heavily dependent upon student fees which currently provide 60% of the operating costs.

The universities offer 4-year (5-year for engineering and 6-year for medicine) bachelor degree programs and additional 2 years for masters programs and in some cases, diploma programs. In the West Bank and Gaza there are 10 traditional universities, one Open University, 13 university colleges, and 19 community colleges. Most of these were established during the Israel occupation and are non-profit institutions. The single Open University is the Al-Quds Open University. The other universities are the Al-Aqsa University; Al-Azhar University-Gaza; Al-Quds University; An-Najah National University; Arab American University; Bethlehem

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University; Birzeit University; Hebron University; Islamic University of Gaza; Khodori Institute, Tulkarm; and Palestine Polytechnic University. The colleges are the Al-Najah College; Al-Rahmeh Collage for Girls; Al-Rawdah Technical College; Al-Ummeh College; Hebron College of Technical Engineering; Ibrahimieh College; Jerusalem Collage of Islamic Studies; Kalandia Training Centre; Khan-Yunis Scientific and Technological Centre; Palestine Technical College; Qalqiliya College of Islamic Studies; Ramallah Women's Training Centre; Training Centre for Boys; and Edward Said National Conservatory of Music.

In 2004-2005, 138,139 students were enrolled in higher education: 76,650 (55%) in traditional universities, 46,453 (34%) in the Al-Quds Open University and 6,034 (4%) in the university colleges and 9,002 (7%) in the community colleges. The majority of university students, Open University students and university college students were male while the share of females was greater in the community colleges. In 2007, gross enrolment ratios for higher education were 46.2% (41.6% male, and 50.9% female). Most of the students sign up for the social science, education and humanities and arts courses. The number studying science and engineering is small (Wikipedia, the free encyclopedia, 06.01.2010).

UNESCO states that the universities have suffered from their isolation from international academia. Inter-university co-operation programs have been instituted by UNESCO, UNDP and the EU including TOKTEN, PEACE and MEDCAMPUS. The PEACE program (Palestinian-European Academic Co-operation in Education) has allowed students and teachers to attend European universities when the universities in Gaza and the West Bank were closed and has arranged for volunteer academics from Europe, North America and elsewhere to provide advice and support in the West Bank and Gaza.

DISTANCE EDUCATION

In addition to the usual reasons for off-campus study in other countries, distance education has become almost obligatory in Palestine because of the problems students face travelling to the various education centers and because the existing universities cannot absorb the growing student demand.

Al-Quds Open University (QOU)
(http://www.qou.edu/englishIndexPage.do) was the Arab World's first single-mode open and distance state university and it is the only distance

teaching university in Palestine. Originally established in Amman, Jordan, by decree of the Palestinian Liberation Organization, it started operating in the Palestinian territories in 1991. It is administratively, academically and financially an independent public university. It plays a key role in Palestinian higher education despite having to operate amidst political, social and economic turmoil and on a cost-recovery basis. In 2005-2006, QOU had a student enrolment of almost 45,834, 876 administrative staff, 300 full-time teaching staff and 1081 part-time teachers. Today, it has around 60,000 students, 40.21% of whom are male and 59.78% female, and nearly 2000 academic staff, between 25% and 30% of whom are full-time. QOU is the largest academic institution in Palestine, serving about 40% of all Palestinian university students. It offers bachelor programs in Technology and Applied Sciences, Agriculture, Social and Family Development, Administration and Entrepreneurship, Administrative and Economic Sciences and Education which are the equivalent of their counterparts in conventional universities, plus a Preparing Year. It has 24 study centers in the West Bank and Gaza Strip and the largest computerized network in Palestine.

For Palestinians of the Diaspora, QOU also operates through study centers in Dubai, Abu Dhabi and Saudi Arabia. Like all open universities, its mission is to serve disadvantaged and disabled students but in the Palestinian context, it also serves liberated Palestinian prisoners, wounded citizens, and those whose mobility is constrained by the ongoing conflict.

In response to the events in Gaza and the consequent disruption in classes, exam schedules and students' lives, in 2009 QOU students in that territory were safeguarded against a proposed hike in first year fees, granted six credits of classes without charge, have their tuition fees reimbursed if they had lost family members and provided with financial assistance if they had lost resources (Turkish Weekly, 2009).

Almost single-handedly, QOU has coped with the increasing demand, not only from working adults, housewives and so on but increasingly, high school graduates.

MOEHE sees QOU as playing a key role as a program quality enhancer and enabler of a more efficient use of resources.

Needless to say, this is perceived as a problematic trend by many in the Palestinian higher education community. Likewise, the alliance between the QOU and the TEVT sector in the field of continuing education and

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training could help to modernize the colleges, redefine their mandate and integrate them more fully in higher education system (MOEHE, 2005). QOU has also been involved in a number of EU-supported projects in ICT development, including the Avicenna Virtual Campus, EUMEDCONNECT and RUFO projects described in the later section on e-learning and ICT integration.

In addition to the e-learnig initiatives in QOU, most Palestinian universities including the Islamic university of Gaza, BirZeit University, Al-Najah University, BethLehem University, PPU (Palestine Polytechnic University) and other Palestinian universities established e-learning centers to enhance the traditional educational system with e-Learning technologies. Palestinian e-Learning centers use electronic exams, school virtual labs, multimedia production, video streaming, Learning Management Systems (Web CT, moodle, etc.), e-registration systems and Web 2 tools (Wikis, blogs, podcasts, video sharing sites etc.) to blend face to face classrooms with modern e-learning technologies. The e-learning centers in the Palestinian universities already support colleges in their universities to offer blended learning mode courses in addition to some limited number of fully on-line courses.

e-TRAINING IN GOVERNMENT AND INDUSTRY

The Ministry of Education and Higher Education (MOEHE) as well as other non-governmental agencies that are active in Palestine currently provide computer and Internet training. The following paragraphs present some examples.

Futurekids project is an international project that provides schools and learning centers with complete technology curricula. Information Technology Provision and Training at the Welfare Association (WA) have initiated 38 ICT related projects including:

- Cooperation with Birzeit University to place disabled Palestinians in computer and IT training courses.
- A regional academy for Cisco Systems computer networking qualification training was established at Birzeit University and five local academies were set up, two in Gaza and three in the West Bank.

- WA and Microsoft Corporation partner to establish accredited training academies at 7 universities.

- A computer technology department was established at Al-Quds University (Jerusalem).
- A CISCO-supported advanced computer training and certification program was sponsored at Birzeit University; (http://www.welfareassociation.org).
- WA is supporting the establishment of a Center for Excellence at Birzeit University for training computer graduates in advanced skills.
- Computer-based technology was used to upgrade al-Azhar University library in Gaza.

Computer Clubs and Internet Cafes in West Bank and Gaza Strip help to spread computer literacy.

Many companies are turning to organizing trade shows and other marketing activities to increase public awareness.

The Ministry of Education and Higher Education distributed 2588 computers and 293 printers to Palestinian schools during 2004.

Palestinian Academic Network (PLANET) links universities, colleges as well as schools with the Web. It also links most of the Palestinian ministries, and offers connectivity between cities and within cities.

The Ministry of Labour offers computer training to technicians and professionals from all disciplines in an effort to strengthen ICT integration in different professional sectors.

There are many vocational schools providing long and short-term training programs, but vocational programs in schools do not incorporate IT-related courses. Some technical colleges and continuing education centers offer training workshops, seminars in computers.Jawwal works currently to establish "Jawwal's Academy for Technical Training" at Abu Kash/Birzeit.

UNRWA Education Department has a program to upgrade technical training and management practices at eight Vocational Training Centers (VTCs) in the Palestinian territories.

In BirZeit University the first Internet training canter within a refugee camp and the first cellular phone service in Palestine which was introduced by PALTEL was inaugurated in 1999.

At the commercial level, tens of training centers that offered training in Microsoft Windows, Microsoft Office, Computer networking, design of multimedia, computer programming. In addition, tens of Internet cafes were inaugurated for public use of Internet as a communication tool (through chat programs) and for entertainment (games, etc.).

In late June 2000, the first Palestinian cellular phone service was inaugurated by President Arafat signaling a new communication era. The new GSM technology system is called "Al-Jawwal" and offers to the Palestinians their own service. Paltel bought lines from Bezeq and upgraded them by adding fiber optic cables. Paltel aimed to offer higher-speed communications and Internet access by the end of following year.

AMIN is a project of Internews Middle East that aims at supporting Arabic-speaking journalists and media personnel. AMIN's focus is on putting Arabic language reports and news stories on the World Wide Web and training journalists in accessing Arabic media and other resources on the Internet.

In July 2000, the first Internet training Center in a refugee camp in Dheisheh near Bethlehem, signaled the launch of the Across Border Project. The Project was initiated in January 1999 by the Birzeit University Information Technology Unit and aims to bring Internet technology into Palestinian refugee camps across the Middle East.

The first bilingual website was ready one month later completely designed by a group of camp residents, including on-line news, oral history and stories from Palestinians refugees giving a meeting place and a window onto the world. The Across Borders Project also aims to facilitate the connection of refugees with each other.

Palestinian Information Technology Association of Companies (PITA) , as an association for the ICT companies in Palestine, is assisting in the organization of ICT exhibitions and lobbying for its success, locally as well as internationally (like GITEX and others). PITA was active in organizing various lectures and discussions dealing with the legal aspects for the Internet and for telecommunications within Palestine in general.

PITA had invited international lecturers to speak at these events, attempting to bring a different perspective to the participants. However, PITA was not the only body who instigated some activity within the IS Community, the EUMEDIS Focal Point Coordinator held a workshop, CISCO Chairman visited Birzeit University, and Paltel signed an agreement with Startec to provide VoIP services to the Palestinian market (IS Promotional Activities, 2000).

According to (Tesdell L. and Mimi O, 2009) training of teachers in online pedagogy is progressing in Palestine. One of the current projects of the Center for Continuing Education at Birzeit University is to train university and college faculty in online pedagogy. Two projects are currently underway, running from 2008-20010, for the training of teachers in the use of online pedagogy. E-Learning Models in Higher Education is a project which is a partnership of Bethlehem University, Al-Quds University, and funded by Ford Foundation. This project has three goals: (1) to identify effective e-enabled models at the university education level, (2) to establish national showcases as a model for innovative learning solutions, and (3) to build a community of practice in e-learning. The second current project is the Learning Innovation Team at UNRWA (United Nations Relief Works Agency) and is a partnership with Al-Quds University and the UNRWA Teaching Education College. This project is funded by CISCO Systems. Again, the goal is to train current experienced teachers in online pedagogy.

TECHNOLOGY AND ICT

Awartani (2004) reported that there had been a quite remarkable spread of computers and the Internet to villages and remote areas in Palestine—a great deal more than might have been be expected given the income level of Palestinian society. He attributed this to the use of videoconferencing and online technology during Israeli military incursions when it was often impossible for teachers and students to gain access to their educational institutions. According to the latest data from Internet World Stats (http://www.internetworldstats.com/stats5.htm) in 2009 355,000 people in the West Bank (they only give data for this) had Internet access compared with is 35,000 in 2000. In other words, the penetration rate among the population of 2.4 million persons is 14.8 % and the growth rate over the past few years. However, to put this in perspective, this is not as high as in the Middle East as a whole where the penetration rate is 23.3% and overall growth rate 1296.2%. About 26.4% of families have computers at home, 29.5% of household the main reason for having computer is to use for the

teaching and study of family members (not children) while 27.2% for teaching children of family.

The total number of PC users over 10 years of age was 35.7%. As for the Internet, the PCBS study showed that 9.2% of the Palestinian households have connection to the Internet and that the total percentage of Internet users who are older than 10 years old reached 33.3%.

Acording to (Tesdell L. and Mimi O, 2009) Palestine receives its Internet from NetVision an Israeli company, which brings the Internet on shore from a Mediterranean undersea cable. http://www.013netvision.net.il/Article/?ArticleID=539031&typeid=2

Within Palestine, PalTel (http://www.paltel.net/index.php?lang=en). For maps of the distribution of distributes Internet service Internet cables in the world, One element that influences the use of online pedagogy by http://www.telegeography.com/products/map_internet/images/internet_map09_lg.gif students in Palestine, of course, is the price of Internet connection and associated expenses visit

The necessary components for getting connected from home are, of course, the computer, the monthly fee for Internet connection, other associated devices, and one-time installation fees. On this matter personal income clearly plays a role.

In a recently presented paper, Dr. Rita Giacaman, a professor at Birzeit University claimed that some 52% of Palestinian families (40% in the West Bank and 74% in the Gaza Strip) were living below the poverty line of US$3.15 per person per day in 2007 (Source: http://www.birzeit.edu/news/19583/news).

Clearly, students or trainees in these families would find it difficult to pay for the required equipment for e-learning.

Table 1 shows the percentage of households who have some (ICT) tools at home by region in 2009 (Palestinian Central Bureau of Statistics, 2009).

Table 1.
Percentage of households who have some
(ICT) tools at home by region in 2009

Some (ICT) Tools	Region		
	Gaza Strip	West Bank	Palestinian Territories
Computer	45.6	51.1	49.2
Internet at home	30.9	27.2	28.5
TV	93.2	97.0	95.7
Telephone Line	40.0	51.4	47.5

Examples of e-learning software tools used in the Palestinian universities include IUG Tube achieving of online Lectures at the Islamic university of Gaza. Similar tools are used in other Palestinian universities. This service enables learners to access recorded lectures and comment on them. IUG also currently uses Web Conference tool to provide some functionalities of the virtual classroom studios to conduct online lectures. This service provides video conferencing service through the Web and enables instructors to design/provide and deliver their courses through virtual classroom, conduct meeting with international partners/peers etc.

In Cooperation with JICA (Japan International Cooperation Agency) e-learning centers in IUG and BZU have established smart rooms. Five smart rooms in were established in Birzeit university and one smart room was established in IUG. These Smart Class Rooms are equipped with Smart Boards and are used to conduct online classes.

E-LEARNING AND ICT INTEGRATION

Several international agencies support and help Palestinian schools and universities to introduce e-learning into the classroom. In the Regional ICT in Education Project, the British Council has collaborated with the MOEHE and UNRWA in providing training and assistance for teachers' uses of ICT in West Bank and Gaza schools, with the support of the Birzeit and Al Aqsa universities.

The teachers in Ramallah were also trained in moodle and enabled to network with teachers in Egypt, Jordan, Lebanon and Syria. An online school linking project was also run between Nablus and UK secondary schools (British Council, undated).

Pacetti (2008) describes the SPEP (Support to Palestinian Education Program) project funded by the Italian Cooperation, managed by UNDP and involving the MoEHE, 24 public schools, 3 West Bank universities and one in the Gaza Strip and the University of Bologna. The Belgian Government has also been active in helping with e-Learning in the Palestinian education system.

Most of the Palestinian universities are introducing e-learning into their courses either independently or with support of international organizations such as the British Council and JICA (Japan International Cooperation Agency). In 2004, the British Council ran a fully online professional development project between the Islamic University Gaza and Middlesex University. This was concerned with on-line learning environments, webcams and videoconferencing and won the Times Higher Education Supplement e-tutor of the year award. The British Council also organized videoconferencing forums to enable Palestinian policy makers and practitioners to share experiences and discuss with their UK counterparts such matters as e-learning pedagogy, evaluation and assessment methodologies.

E-Learning is a key part of QOU development strategy (Hodali and Amro, 2004). QOU uses Moodle and ELLUMINATE systems to provide online lectures, blended sessions, workshops, discussion circles, and conferences and enable students to access and download course materials, submit assignments and interact with their teachers and fellow students. In the AVICENNA project (Hodali I. and Amro I., 2004)), QOU invited faculty members from other universities to collaborate in e-learning course development. This sharing of ideas and human resources led to the institutions considering other avenues of cooperation and expansion into other institutions. QOU also played a key role in the EUMEDCONNECT project.

Before EUMEDCONNECT, there was almost no direct Internet connectivity or research and academic linkage between the non-EU Mediterranean countries and the rest of Europe. The infrastructure provided by this project makes it possible for Palestinian universities to develop and share e-learning courses, resources and virtual libraries and connect to other research and education networks. The fibre optic line used for this was hosted by QOU and shared with Birzeit University, Al Quds University, Al Najah University and Palestine Polytechnic University.

The network was originally contracted to operate up to June 2006. In January 2006 its funding was extended to 2007. The universities approached donors and governmental bodies and considered raising revenues for work done using this line to help with the connection fees.

The government did provide US$30,000 but such were the financial problems facing Palestinian universities that only QOU and Birzeit were able to fulfill their financial commitments. Cooperation between Palestinian educational institutions is not that common but EU-supported projects have created opportunities for faculty members to collaborate in ICT and e-learning development. Mention was made earlier of the Avicenna Virtual Campus, EUMEDCONNECT project and RUFO project.

The Avicenna Virtual Campus was designed to accelerate the adoption and use of ICT-assisted learning in 11 Mediterranean non-EU Member States. The EUMEDCONNECT project concerned with establishing and operating an IP-based network in the Mediterranean region, and RUFO (Inter-University Network for Open and Distance Learning), supported and financed by the General Directorate of Education and Culture of the European Commission, aimed create an inter-university network in Palestine for open and distance learning in connection with European networks

The 2005-2008 RUFO project aimed to create an inter-university network in Palestine to develop knowledge and skills in open and distance learning in collaboration with European networks. Again, the Palestinian partners were QOU, Al-Quds University, Al-Najah National University, Birzeit University and Palestine Polytechnic University.

The European partners were the Basque University, the French Conservatoire National des Arts et Métiers (CNAM) and Université Lille1- Sciences et Technologies, and the Belgian Université Libre de Bruxelles. Workshops, study visits, training and project proposals were developed but political events in Palestine made it difficult for the Palestinian Ministry for Higher Education to take charge of the contract and the completion date was revised to early 2009 rather than September 2008 (Hodali, 2007).

CASE STUDIES

All Palestinian universities adopted some form of e-Learning delivery mode of courses. This is caused by both market pull and technology push. Itmazi J. and Tmeizeh M. (2008) summarizes the experiences of eLearning initiatives at traditional Palestinian universities.

Al-Quds University (QU), (www.alquds.edu) e-learning activities are supervised by Said Khoury IT Center of Excellence, QU uses the e-learning solution to facilitate course delivery through Web technology and to solve problems of the lack of hosting course material, QU uses the open source platform (moodle) to offer some of its courses. The QU offered eCourses.

Palestine Polytechnic University (PPU), (www.ppu.edu) has an e-learning Unit for managing e-learning activities, it uses e-learning solution to support its courses by using a customized version of the open source platform (moodle). In the past, PPU used Online Syllabus as a Web-based application realized by PPU to support the course content and to attract students.

The Islamic University of Gaza has also started an e-learning center offering online teaching and learning and online training for staff. Islamic University of Gaza (IUG), (www.iugaza.edu.ps) has an e-learning Center for managing eLearning activities. A Web Course Tools (WebCT) has been used as a course management system to support and facilitate using information technology and modern communication in the educational process. Recently, IUG has added the open source platform (moodle) as additional platform for e-learning activities.

IUG offered two courses as online course (via virtual mode); First Aid Course and Holy Quran Course as mandatory courses of IUG requirement courses.

Birzeit University (BZU), (www.birzeit.edu) uses e-learning solution to support its courses by using the open source platform (moodle), which offered some eCourses. The BZU offered eCourses are supported courses. Birzeit university has also started the Ritaj portal, which provides online information, administration and material services to the students.

An-Najah National University (NNU), (www.najah.edu) e-learning activities are supervised by e-learning Committee (from Computer center, Computer Engineering Department, IT College).

It uses a local platform (On-line Course Container and Digital Contents) to provide shell for the learning content and to facilitate student and instructor communications.

Bethlehem University (BU), (http://www.bethlehem.edu) used the open source platform (moodle) to offer some of its courses as supported courses.

Currently, Institute for Community Partnership (ICP) at BU announced an Online Professional Diploma Programs as the first diplomas in Palestine to offer courses using blended learning; "Small-Scale Business Administration", "E-Business", and "Project Management". It is wroth mentioning that these programs are non-academic programs.

Al-Quds Open University (QOU), (http://www.qou.edu) has two e-learning initiatives; Avicenna virtual Campus project, (http://pleiad.qou.edu) which aims to produce online courses and it has already offered at this project some eCourses related to its open courses. It has also Academic Portal (www.qou.edu) which allows students and tutors to communicate and exchange materials.

RESEARCH AND TRAINING IN E-LEARNING

According to (Araeh, 2008), there are three major e-learning research areas. The first one includes applying e-learning in education as well as higher education. The various research issues addressed encompass: the Quality of e-learning and its various dimensions focusing on the pedagogical one, applying e-learning in practical and experimental laboratories, electronically grading an essay type questions, and applying Mobile-learning locally. Up to date, an Auto Grading Essay System has been developed and it is under testing from different university instructors. Further more, a smart preliminary input-output card with its associated software has been developed. This real time-based system allows students to perform an electronic experiment at home or in the laboratory without using the basic instruments such as the oscilloscope, and signal generators. An enhancement to the preliminary card is currently under development that will facilitate accomplishing more experiments and generating the reports. The research partners include several local universities as well as Umea University-Sweden, and CNAM-France.

The second research area focuses on applying the various mathematical modeling tools in predicting electric power load and water demands. A demo version will be finished that will be submitted for testing by a local electric company. This is done in collaboration with a local private sector and Brunel University-UK. The third area of interest addresses the quality assurance and enhancement in higher education. The most important outputs were to develop and establish local benchmarks for all Computer-related and Electrical Engineering academic programs. This was funded by UNESCO, Jerusalem office.

Some faculty who were involved in e-learning projects in Palestinian universities including IUG, PPU, BZU, Al-Najah University and others conducted research in the e-learning field. Research papers of these faculty members were published in international journals and conferences. For example, the MVU team (M. Mikki, Hatem Hamad) in IUG contributed in the publication of a book chapter titled "Control/Quality Issues in Web-based Learning"in the Educational Virtual Spaces in Practice book which was published by Ariel Publication Company, Spain, in October 2005.

Dr. M. Mikki from IUG wrote a paper that presents the design of a video streaming LMS which was submitted for publication. Mr.Abdallah Arman from PPU has presented two scientific papers at the International Business Information Management Association (IBIMA) conference held in January 4-6, 2009 in cairo, Egypt. Paper submitted by Dr. Jamil Itmazi from the Friends of Fawzi Kawas IT Canter of Excellence at the Palestine Polytechnic University with the title "Using Recommendation Systems in Course Management Systems to recommend Learning Objects" has been published at the "International Arab Journal of Information Technology (IAJIT)" on July 2008. Dr. Jamil Itmazi has also published a paper titled "Merging e-learning in the Palestinian universities and its requirements, methodology and advantages" in the Journal of human science, Number 38 (http://www.ulum.nl/index.htm).

Dr. Jamil Itmazi from IT Center of Excellence at the Palestine polytechnic University has been selected as a Member of International Program Committee and a Reviewer of two Conferences: the "4rd International Conference on Interactive Mobile and Computer Aided Learning (IMCL2009)", which will be held at Princess Sumaya University for Technology, Amman – Jordan, and at the "e-learning and eResearch in the Arab World" Conference, which will be part of the "5th Congress of Scientific Research Outlook in the Arab World: Scientific Innovation and Sustained Development", which was held in Fez-Morocco in the period 26-30 October 2008.

Paper submitted by Dr. Jamil Itmazi from the Friends of Fawzi Kawas IT Center of Excellence at the Palestine Polytechnic University with the title "Blended eLearning Approach for Traditional Palestinian Universities" has been published at IMCL2008- the 3rd International Conference on Interactive Mobile and Computer aided Learning", which was held in Amman, at 16–18 April 2008.

In addition, Palestinian universities usually hold workshops in e-learning. For example, BirZeit university On 10 February 2008, the Department of Languages and Translation held a one day workshop for its faculty members entitled "E-enabled Curriculum Design-Development and Delivery: Theory and Practice." at the Center for Continuing Education (CCE), conducted by Dr. Osama Mimi, Head of the Unit for Learning Innovation at CCE. The workshop addressed the following topics:

- An introduction to the models of E-enabled curricula
- A definition of E-Learning (what and Why)
- Instructional strategies and activities in E-Learning
- Types of E-Learning resources.

Many senior students from computer engineering department and computer science departments at the Palestinian universities select their senior graduation projects in the field of e-learning including the design of online courses, Learning Management Systems, eExams, and other eContent of traditional courses.

CONCLUSION

Use of e-learning solution in Palestinian universities and schools is currently being supported and enhanced at different levels due to its advantages and promising investment and business opportunities.

Other factors that led to the adaption of the e-learning solution include the political separation of the two components of the Palestinian territories: Gaza strip and West Bank, and the lack of trainers.

Institutions are finding that eLearning is an effective instrument for exposing learners to the tools of digital scholarship. It is proving especially useful at multi-campus universities as a mechanism for achieving consistency in learning experiences and outcomes across the distributed campuses. eLearning using "open" (available for everyone) educational resources is being used to share learning resources across institutions, accelerating the development of emerging institutions.

The following factors represent potential threats to online programs at the Palestinian universities. They need to be examined and addressed to minimize their impact.

E-Learning Culture Needs To Be Promoted

Faculty and students in Palestinian universities especially, in non-scientific colleges not have the minimum requirement to conduct the teaching/learning process using the offered e-learning technology. In order for the e-learning solution to be successful we need both to convert students into eStudents and instructors into eInstructors. This process requires a lot of training which is not easy to implement at the university-wide scale.

eStudents Do Not Have Required Technology At Home

In order for eStudents to learn from home through taking online courses, they need to have the minimum requirements of software, hardware and Internet connectivity bandwidth. These requirements are not necessarily guaranteed to be available. eStudents may not have enough money to buy/upgrade personal computers to meet software and hardware minimum requirements. In addition, since the Internet Service Providers usually provide an Internet connectivity through ADSL that is shared among several customers.

Market Uncertainty

Assumptions on the attractiveness of online learning are at times made on behalf of students. Flexibility of access time & place is considered to be a motive. Feedback from potential participants should be conducted by means of surveys. Surveys are designed to reduce levels of uncertainty.

Conducting market research in the wider community will assist eliminating the uncertainty associated with target groups such as students, professionals and corporate training schemes.

Shortage of Funds

In order for the e-learning centers at the Palestinian universities to launch e-learning solutions they need to have certain fund to be able to buy necessary software and hardware equipment needed for virtual classroom, design of e-registration/payment systems etc. They need also to buy servers to support multimedia streaming and videoconferencing. In addition they need to have high bandwidth Internet connectivity. Currently, these e-learning centers and their corresponding universities lack the enough funds to achieve the above goals.

Perceived Costs in Students Target Group

Students do not pay fees or pay little to enrol in their local universities in undergraduate programs.

The perception in such students' communities is that higher (undergraduate) education is freely available, and offering online courses should follow the same trend.

Accreditation & Recognition
Not being granted accreditation by higher education authorities will pose a potential threat to attracting audience from students target group.

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CHAPTER-27

eLEARNING IN POLAND

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ABSTRACT

The chapter contains information about Poland, Polish educational system, using ICT in education and state of development eLearning for Poland distance education system in the Millennium.

COUNTRY

Poland is a country in Central Europe bordered by Germany to the west; the Czech Republic and Slovakia to the south; Ukraine, Belarus and Lithuania to the east; and the Baltic Sea and Kaliningrad Oblast, a Russian exclave, to the north.

Figure 1.
Poland in Europe

Source:http://www.cia.gov/library/publications/the-world-factbook/geos/pl.html

The total area of Poland is 312,679 square kilometres (120,726 sq mi), making it the 69th largest country in the world and the 9th largest in Europe. Poland has a population of over 38 million people, which makes it the 34th

most populous country in the world and one of the most populous members of the European Union.

Figure 2.
A map of Poland

Age and gender distribution of the population of Poland are 0-14 years old 15% (male 2.964.995, female 2.802.278), 15-64 years old 71.6% (male 13.713.078, female 13.845.251), 65 years old and over 13.4% (male 1.966.406, female 3.190.911) (2009 est.)

EDUCATION SYSTEM

The education of Polish society was a goal of rulers as early as the 12th century, and Poland soon became one of the most educated European countries. The library catalogue of the Cathedral Chapter of Kraków dating back to 1110 shows that already in the early 12th century Polish intellectuals had access to the European literature. In 1364, in Kraków, the Jagiellonian University, founded by King Casimir III, became one of Europe's great early universities. In 1773 King Stanisław August Poniatowski established his Commission of National Education (Komisja Edukacji Narodowej), the world's first state ministry of education.

Today Poland has more than a hundred tertiary education institutions; traditional universities to be found in its major cities: Białystok, Bydgoszcz,

Gdańsk, Katowice, Kraków, Lublin, Łódź, Olsztyn, Opole, Poznań, Rzeszów, Szczecin, Toruń, Warsaw, Wrocław and Zielona Góra, as well as technical, medical, economic institutions elsewhere, employing around 61,000 workers. There are also around 300 research and development institutes, with about 10,000 more researchers. In total, there are around 91,000 scientists in Poland today.

The Polish educational system was reformed in 1999. Reform involved profound changes in the school structure, curriculum, the grading system, and requirements for students. Teacher training has also changed.

The Polish educational system consists of elementary (primary) schools (*szkoła podstawowa*), grammar schools (gimnazjum), secondary schools (high school/liceum or technical grammar schools, and vocational schools (*technikum*), and universities and other institutions of higher education. Tuition is free (in the state's schools) and compulsory until the age of 18. Attending both primary and lower secondary schools is now obligatory. Pupils begin their education at the age of 6.

Children begin education in "Form 0" (*klasa "0", zerówka*), where they acquire preliminary skills like reading and writing, and learn simple mathematical concepts and operations. After one year in "Form 0" they continue their education at primary school (*szkoła podstawowa*). Education in the primary school lasts for 6 years. This 6-year period of school ends with an exam (*test*).

The purpose of the exam (test) is only to provide information on how much pupils have learned. After primary school pupils move on to grammar school (*gimnazjum*).Education in the grammar school lasts for 3 years.

Education at grammar school (*gimnazjum*) concludes with an examination divided into a humanities paper, and a mathematics and natural science paper. This exam is very important for pupils. They select their chosen secondary school on the basis of the results of this examination.
The higher the outcome **or** result, the greater the chance to attend the particular school chosen by the pupil. After grammar school (*gimnazjum*), students may choose:

- 3-year high school/liceum (*liceum*),
- 4-year technical grammar schools (*technikum*),
- 2-3 year vocational schools (*szkoła zasadnicza*).

Figure 3.
How educational system is organized in Poland

Source: http://www1.american.edu/initeb/rw9257a/workforce.htm#appendix
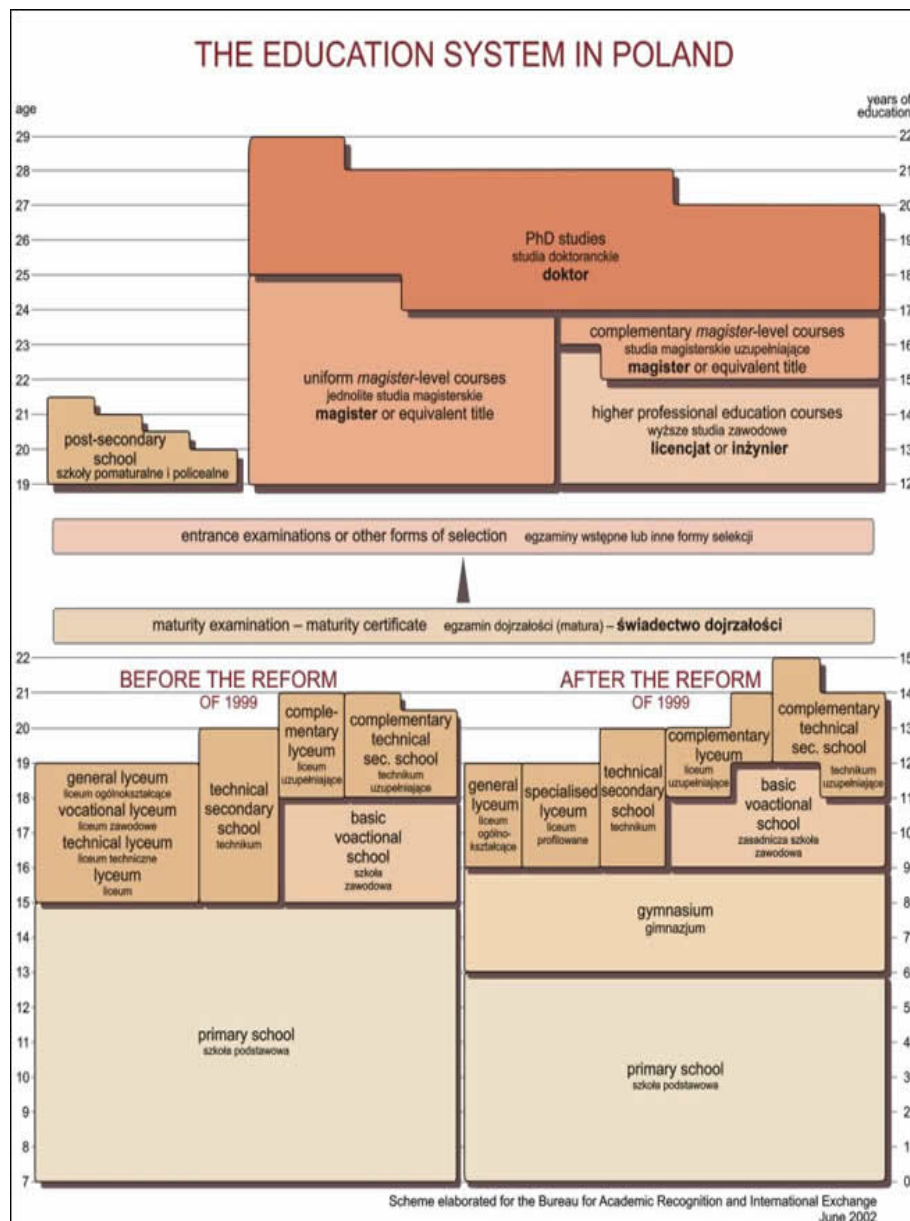
Education at a vocational school is concluded with a professional examination. This exam is an external one - it is graded by an independent external examiners' board.

General (*liceum*) and technical grammar school is concluded with the matura, a school-leaving examination, which is currently predominantly internal in character, i.e. it is held at the student's school and is marked by examiners who are teachers from the same school. The new mature system was introduced in 2005. The new system is a mandatory scheme. The new mature school-leaving examination is divided into 2 parts.

The first one will consist of an oral examination at the pupil's school (internal type). The second one will be an external written paper, marked by an external board of qualified examiners. Results of the new mature will be very important because this exam will provide the basis on which pupils will choose their area of specialization.

Most schools in Poland are public. They are financed by state authorities. Education in these schools is free and anybody may attend them. A person who has finished school obtains a diploma or certificate of education.However there are also non-public schools which may be set up and managed by both natural and legal person. Education at a non-public school is usually not free. Non-public school may receive the status equivalent to that of a public school only if the curriculum is the same as in public school and if the teachers working there are also qualified to teach in public schools.Both elementary and middle schools may only be public or non-public schools which have received the status equivalent to that of a public school. A pupil who has finished elementary school has an elementary education.

Pupils who finish middle school obtain a middle school education. Pupils who finish vocational school receive vocational education.
Education at grammer school level may be obtained by a pupil who has finished grammar school or technical grammar schools and who passes *matura*/final exam.

USING TECHNOLOGY IN EDUCATION

Student begins taking technology-related courses during primary school when the student is approximately 12 years of age. At the grammar school level students are exposed to 2 hours a week of obligatory subject "computer

science", which is called "informatyka". The curricula of this subject include the following issues:

- Computer in the human life.
- Work with the computer.
- Utility software (graphics editors, text editors, spreadsheets, databases).
- Multimedia sources of information.
- Algorithms.Simulation and modelling.

Students continue technology-related classes while in vocational, technical secondary, specialized lyceum, and general lyceum schools.As mentioned, technology is being incorporated into the curriculum as Head Teachers are encouraging Teachers to include such tools in class learnings.

IATEFL Poland, a computer special interest group mentioned, "nowadays, the expectations towards knowing the potential of Information and Communication Technology and effective using it in teaching are quite high in Poland-Teachers are often obliged by Head Teachers to make use of the Internet lab, students exercise pressure on their teachers to use the Internet in learning English, while parents are extremely glad to see new methods and teaching aids such as computers and the Web facilitating and enhancing language learning. More and more schools have Internet labs available for English lessons, making it possible to execute Web-based lessons."

Computers at Schools
In Poland many programmes and projects aiming at equipping schools with computers and Internet access, IT education and improving the use of the information society technologies as well as improving the quality of teaching, have been implemented, e.g. Interkl@sa (including "An Internet classroom in every community" and "An Internet classroom in every junior secondary school"), "Equipping secondary schools with an Internet laboratory", "Teaching for the future" and two "Internet for schools" projects. Poland supports the European Union's vision for ICT in education policy. In particular, the Lisbon strategy: to make the European Union the most competitive and dynamic knowledge based economy with improved employment and social cohesion was the basis of the Polish strategy.

Consequently, eEurope and eEurope+ action plans were followed. However, ICT in Polish education is not as widespread and modern as it is in the EU countries.

The main aims and priorities of the policy were and still are:

- Introduce the ICT in education to all schools not only on lessons of computer science but also on lessons of other school subjects,
- Prepare all teachers to become animators of ICT in their schools and to use ICT for pedagogical
- Purposes,
- Assure the global access to rich educational content for all students.

An example of a Public Private Partnership is an agreement between Ministry of National Education and Sport (MoNES) and Intel on teacher training in the frame of "Intel Teach to the Future" programme. During the last three years (2001-2003) over 50 000 teachers were trained.

The Interkl@sa Programme were a nationwide co-operation network of thousands of schools, teachers, pupils, educational NGOs working together to bring Polish education closer to the European Union standards. It is a non-governmental programme but it co-operates closely with of the Ministry of National Education and Sport and is supported by private companies, especially from the IT sector. The programme also closely co-operated with Polish media: Public TV, Public Radio and the biggest Polish daily newspaper.

Between January 1998 and December 2002 Polish schools, under the programme of the Ministry of National Education and Sport, were equipped with a total of 100 000 computers. ICT workrooms have appeared already in all lower secondary schools in Poland. The aim of Interkl@sa is to equip all secondary schools by the end of 2004 and all Polish primary schools by the end of 2007. Interkl@sa started in co-operation with the private company Intel the teachers training programme "Intel teach to the future". Thanks to the cascading structure of the programme, by the end of 2002 over 40 000 teachers had been trained in using Information and Communication Technology for teaching and for their own work. It is vital for the Interkl@sa programme to open the ICT workrooms for local communities, to make use of them as training centres, and also as communal European information points, as tools for the promotion of communes, for the implementation of ecological projects, programmes for the disabled, in elections and referenda. Efforts are made to turn school libraries into multimedia information centres. Computers in Polish schools are mostly purchased by the Ministry of National Education and Sport (presently the name is: Ministry of National Education) and local governments.

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Now (in 2009) all schools in Poland are equipped in computers with the access to Internet. In many schools there is more than one computer laboratory (for example: two laboratories for regular lessons from ICT education and one multimedia laboratory for lessons from other subjects supported by using technology). At the end of 2008 programme „Laptop for grammar school (gimnazjum) student" started. The main aim of this programme is to equip schools in big sets of laptops–with proper educational software - in order to lend them to students for three years (duration of staying students in the school). About 12000 teachers were trained in operating mobile devices, multimedia devices and using methods of distance education. Methodology of using educational software (properly to particular subject taught at school) is to be a next stage of training.

Educational Portals
In Poland teachers and students can use didactic materials gathered in educational portals. Portal Scholaris (www.scholaris.pl retrieved on December 9th, 2009) (Internet Centre of Educational Resourses of Ministry of Education- launched with the support from European Union) is the biggest and the most famous one. It contains a big number of e-lessons, presentations, simulations, tests, pictures, maps, movies etc. categorized in two ways: type of material and subject that it is useful for. Also portal contains journals online for teachers. Many of these journals are focused on using ICT in education (for example: New Technologies in the School, Safe Internet, Interklasa). A very interesting initiative: it is possible to learn how to create a virtual school and lead it (option: e-Szkoła). Other very good educational portals are:

- Eduseek (http://eduseek.ids.pl retrieved on December 9th, 2009, divided ito parts for students, teachers and parents,
- Interklasa (http://www.interklasa.pl retrieved on December 9th, 2009, it contains catalogue of Polish educational resources,
- http://www.ids.edu.pl, retrieved on December 9th, 2009, everything (almost) about Internet for schools
- and other......(For more information about educational portals under address and retrieved on December 9th, 2009 http://wienmar.republika.pl/linki/Portale_%20edu.htm

Internet "Linings" of Schoolbooks
Now many schoolbooks are equipped with CD that contains different multimedia interactive materials for students. A very interesting initiative is „Internet lining for schoolbook".

This title means materials for students and teachers available via website of a publishing house. Materials are strongly connected with particular schoolbook, interactive and (mostly) dynamic. The most interesting example in this field available at the website (www.wsip.com.pl retrieved on December 9th, 2009)

E-LEARNING IN POLAND

Legal regulations

Minister of Science and Higher Education established in 2007 that teaching with using distance education methods is allowed at the university if:

- academic teachers are prepared to use distance education methods,
- there is at the university hardware and software that makes synchronic and asynchronic communication between teachers and students possible,
- didactic materials in electronic (digital) form were created,
- it is possible to control activity of teachers.

Also Minister says that total number of didactic hours led in form of distant education cannot be more than 70% of number of hours determinate in Educational Standards (National Curriculum) proper for particular faculty. Higher school must guarantee a proper way of controlling students' achievements, including exams in traditional form. Higher school must guarantee proper preparation students for using distance education methods (special courses). As for schools at pre-academic level, distance learning methods are allowed only as complementary method of work. Teachers are responsible for children during their presence at school, so it is forbidden to replace traditional lessons with online lessons. Of course, teachers can prepare e-learning materials and use them as additional way of work with pupils.

Selected Examples of Good Practices

Many universities are developing e-learning. Usually this whole action starts from individual initiative of academic teachers from particular faculties, and then complex solutions come. Unfortunately there are no available data on the number of people enrolled in distance education. Main suppliers are higher education institutions including:

- the Distance Learning Centre at Warsaw University of Technology (http://www.okno.pw.edu.pl retrieved on December 9th, 2009)

- Open and Multimedia Education Centre at Warsaw University (www.come.uw.edu.pl retrieved on December 9th, 2009)
- Distance Education Study Centre at AGH - University of Science and Technology (www.oen.agh.edu.pl retrieved on December 9th, 2009)
- Polish Virtual University (PUW) - joint project of Maria Curie-Sklodowska University in Lublin and Academy of Humanities and Economics in Lodz (http://www.puw.pl retrieved on December 9th, 2009)
- Distance Education Centre at Gdansk University of Technology (http://www.dec.pg retrieved on December 9th, 2009)

Example 1
Polish Virtual University (PVU) is a joint project of Maria Curie-Sklodowska University in Lublin (state university) and Academy of Humanities and Economics in Lodz (private university). One of the first and bigger-probably the biggest "pure" initiative delivering regular studies using eLearning method (and only this one) on bachelor/engineer degrees.

The advantages of e-Learning in PVU:

- possibility of studying anywhere anytime: lectures and course materials are available online
- developing practical skills: learning by doing projects and solving problem tasks
- efficiency of learning: gaining knowledge at the pace that is suitable for student
- possibility of educating and developing the professional career simultaneously
- availability of employment

Polish Virtual University has started since October 2002. Its main „merits" are:
- "Pure" e-learning methodology in educational process: during standard extramural/part-time mode of education most elements are delivered using e-learning techniques: content, courses, resources, internal tests, virtual classrooms, etc..., only final exams realized in 'standard' way: face-to-face with the commission.

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- Higher education offer – studies
  - Marketing and Management
  - Computer science
  - Political science
  - Nursing
  - other courses (over 180, including training course for tutors teaching over the Internet), andmuch   more...
- PVU as the competence centre: PVU is also a competence centre for methodology, technology and organisation of e-learning. They have the capacity to provide state-of-the-art information technologies and methodological support to all interested institutions, especially to other Universities and Colleges. PVU's offer for other higher education institutions:
  - Designing, production and conducting on-line courses
    a. Methodological counselling
    b. Production of individual courses and trainings
    c. Blended eLearning: supplementation of traditional trainings with on-line ones
    d. Realisation of didactic paths, training modules and entire study curricula
  - Supplementation of minimum curriculum requirements with on-line trainings
    a. Creation of new trainings ordered by higher education institutions
    b. Ready-made trainings
  - Organisation of studies and management of students
    a. Organisation and execution of admission process
    b. Complete student's administrative procedures
    c. Dedicated information system
    d. Student service department, hotline
    e. Management of students
  - Financial management of the teaching process
  - Infrastructure necessary for on-line teaching and IT services
    a. On-line teaching platforms (R5 Generation)
    b. Information highway: fast and efficient Internet connection
    c. System administration
    d. On-line videoconferencing software
  - Ready-made on-line courses
  - Trainings for tutors of on-line courses (preparation of academic teachers for teaching over the Internet)
  - Technical aspects:

PVU has at its disposal modern technical infrastructure, indispensable for conducting teaching over the Internet. It includes: on-line teaching platforms (WebCT, Lotus Learning Space and R5 Generation), videoconferencing solutions, software governing admission process and dean's office operation as well as fast and efficient Internet connection.

- PVU is a partner or cooperator of the following institutions:
  - Polish higher education institutions
  - Warsaw University (COME–Centre for Open Multimedia Education)
  - Jagiellonian University: Department of Strategic Management and Technology
  - University of Warmia and Mazury
  - European College of Polish and Ukrainian Universities
  - Other Universities within the University Centre for Computerization
  - Interklasa–initiative aimed at computerization of Polish gymnasiums
  - Maria Curie-Sklodowska University Foundation
  - Gdansk Foundation for Management Development
  - Fuga Mundi Foundation
- Higher education institutions abroad:
  - University of Washington
  - Jones International University
  - University of Lille
- Polish companies:
  - TVP SA
  - IBM Poland
  - Lotus Poland
  - Young Digital Poland
  - WiedzaNet Co.
- Foreign companies:
  - Siebel Systems
  - R5 Vision
  - WebCT

Example 2.

 E-sgh- elearning platform in Warsaw School of Economics

At the website http://www.e-sgh.com (retrieved on December 9th, 2009) authors of the e-learning system in the most famous economical higher school write:

Warsaw School of Economics assists the traditional forms of education by introducing the e-learning system. The system enables:

- Presentation of the supplementary materials to the lectures and the classes for the full-time studies, extramural studies and postgraduate studies-thereby the teacher expand the traditional lectures with additional content, tasks, tests and exercises as well as enlarge the syllabus of the lecture (or the classes) by brand new issues. The teacher may also introduce to the system the materials presented during a lecture-which certainly will help students to cope with the material.
- Conducting full-standard lectures for the full-time studies, extramural studies and post-graduate studies, which extend the education offer of the School.
- Organization and conducting courses and trainings for the people from outside the School.

All the lectures available in the system are divide into one-screen slides, which allows ordering subsequent pieces of information presented in different part of the lecture.

They also facilitate acquiring the content by displaying the optimal volume of the text. It is therefore easier to scan without searching between the following lines of the text. The materials presented on the Platform are fully multimedia. The text is accompanied by photographs, drawings, animations. The system allows combining the materials with the audio files and the visual ones. Access to the consecutive slides may be limited, e.g. in case of wrong answer in a test. The tests may also include auxiliary part, suggesting the right answer to the user.

Furthermore, the system remembers the history of the resolved tests and enables another approach e.g. to the most difficult questions for the user. Despite the fact that the lectures run via the internet are accessible at any chosen moment, the student is not left to himself. We prepared four independent ways of contact for the students and the teachers: chat, forum, text messages, e-mail.

The Platform elaborated by the SGH's Centre for Development of Distance and Permanent Education was designed in such a way as to allow full usage of its possibilities without regard to the configuration of the end user's computer. It is compatible with most internet browsers. Also, the screen resolution (of a particular computer) is not an obstacle for the system – it adjusts to the current configuration of the computer. Thanks to this function the whole surface of the screen might be used. What is more, the user is able to choose the size of the font so that studying is more comfortable and effective. There is a register prepared exclusively for the teacher.

Therewith, he is able to evaluate continuously the engagement of the participants and their progress. Within the register's functions there are browsing options available (of student's activity statistics, test results, marks and record of the communication with a student). There was launched a special section for coordinating all works related to e-learning in Warsaw School of Economics: The Centre for Development of Distance and Permanent Education. The main aims of the Centre are to organize, promote and develop SGH e-learning activity. The Centre also deals with courses for SGH personnel and training for companies. The aims are realized by:

- encouraging and organizing projects concerning online education and lifelong learning,
- carrying out research concerning e-learning,
- developing e-learning platform www.e-sgh.pl (retrieved on December 9th, 2009), i.e.:
  - creating and promoting educational programs,
  - creating and implementing appropriate tools and methods of teaching,
  - encouraging individual ideas and coordinating teaching offers of SGH lecturers,
- creating and running multimedia library.
- organizing seminars and conferences concerning online education and lifelong learning,
- editing elearning magazine 'e-mentor' and other publications which concern online education and lifelong learning,
- cooperation with state and foreign organizations dealing with online education and lifelong learning,
- organizing educational projects and trainings, also for companies. (For more information: http://www.cren.pl retrieved on December 9th, 2009)

Good Practices in Other Universities
Now more and more universities develop e-learning. Centres of E-learning are created in many universities. Many higher schools got support from European Union. See the websites (retrieved on December 9th, 2009):

- http://kampus.uw.edu.pl (Warsaw University)
- http://www.uni.lodz.pl/studia/zdalneksztalcenie (University of Lodz)
- http://cnz.univ.szczecin.pl/ (University of Szczecin)
- https://pe.ug.edu.pl (university of Gdansk)
- http://cko.us.edu.pl (University of Silesia in Katowice)
- http://elf.pk.edu.pl (Cracow University of Technology)
- http://www.cnm.pg.gda.pl/page/pl/strona_glowna(Gdansk University of Technology) and websites of other Polish higher schools.

Repositories of didactic materials for higher education were created. The repository of materials from area of computer science is the most famous one. (See website: http://wazniak.mimuw.edu.pl retrieved on December 9th, 2009)

Association of Academic E-learning
E-learning has been successfully developing at Polish academic institutions for many years now. Despite no system solutions or legislative support a great number of educational centers in Poland have already taken their first steps in the field of e-learning.

There is no need to convince anybody of the value and advantages of e-learning, which considerably enriches traditional forms of education. The role of e-education has been gaining importance both as a complementary form of education and in organising university courses or even whole studies. E-learning is becoming an inseparable element of the education process and virtualization of higher education.

All this proves that we are entering a stage of full development of e-learning in Poland. It is the stage at which we are going to not only share our experience during conferences or seminars but also, by working together, create some patterns of good e-learning practice and propagate them, thus contributing to the development of e-learning in Poland.

The Association of Academic E-learning was registered in the National Court Register (KRS) in September 2006.

The goals of the AAE are:

- to participate in the process of raising the level of education of Polish society and the development of the idea of an information society;
- to promote and develop e-learning in academic communities, public administration and economy;
- to promote high quality education standards with the use of Information and Communication Technology;
- to participate in activities aimed at the virtualization of didactic and organizational processes in higher education;
- to support scientific and organizational cooperation between institutions involved in online teaching;
- to inspire and enhance bonds between science and economic practice.

The goals will be reached by means of such activities as:

- developing standard curricula which will include the use of ICT in education;
- developing models of e-learning implementation in academic education;
- developing standards of Internet-based teaching and organizing the process of accreditation and certification;
- promoting good practices in creating teaching materials and conducting online classes;
- building a platform of cooperation for e-learning practitioners;
- organizing conferences and seminars;
- acting in the fields of e-learning popularization, information and publishing;
- monitoring and reviewing research and educational offers in the field of e-learning;
- organizing and financing competitions for the best research projects in the field of e-learning;
- organizing scientific and didactic exchange of experience between institutions offering Internet-based education
- organizing and supporting national and international research on e-learning;
- setting ranking lists in the field of e-learning;
- cooperating with public institutions, non-governmental organizations and others whose activities are within the scope of the Association's goals as well as cooperating with institutions and persons interested in the Association's goals both at home and abroad. (www.sea.edu.pl retrieved on December 9th, 2009**)**

E-mentor

E-mentor is the online magazine published by Warsaw School of Economics. It concentrates on such issues as e-learning, lifelong education, knowledge management, e-business, methods and forms of training at the academic level. The first issue of 'e-mentor' was published in October 2003. The magazine concentrates on such issues as e-learning, lifelong education, knowledge management and e-business and in more extensive scope-methods and forms of training on an academic level.

'E-mentor' is mainly e-zine www.e-mentor.edu.pl (retrieved on December 9th, 2009) which is addressed to wide range of readers interested in the subject. It also has a printed version (1200 copies) which is sent to Polish academics dealing with e-learning and higher education methods. The magazine is co-published by Foundation for the Promotion and Accreditation of Economic Education. The average number of visits of the online version per month is 80 000. Partners of E-mentor are such institutions as: AT Kearney, BRE Bank-mBank, Deutsche Bank, the Ministry of National Education and Sport, National Bank of Poland, MasterSolution, Allegro.pl, Plagiat.pl, IMC AG (Information Multimedia Communication) and others.

Research

A lot of aspects of e-learning still require research, especially which this form of education is quite new and discussions about its effectiveness are very lively. Researchers in many Polish higher schools work on:

- Methodology of creating e-learning content
- Methodology of online courses
- Means of learning content delivery in distance education
- Efficiency and effectiveness of distance education
- Evaluation of e-learning
- Optimization of a didactic process in blended learning trainings–system theory approach
- Online courses quality standards
- Personalization and individualization in e-learning
- Reusable learning objects
- Legal and organizational conditions of e-learning
- New trends in e-learning
- Methodology of teachers' training.

CONCLUSION

Using ICT in education is more and more popular. Education via Internet is necessary in age of Lifelong Learning and global education. Blended learning and e-learning in Poland are on stage of intensive development and probably each month, year and other period will bring new achievements in this field.

Recently a big step toward gathering information about e-learning in academic environment was made: a database of e-learning activities in all higher schools has been created (see: www.sea.edu.pl/baza retrieved on December 10nd, 2009). Now representatives of particular institutions put data there. This database will be a source of knowledge about the state of e-learning in Poland; also information included in this database can be a good starting-point to research on different aspects of e-learning, especially on effectiveness of this form of education.

Individualization of educational process in e-learning systems is another strong point of interest of Polish researchers. Recognizing individual style of learning of user and offering proper activities and strategy of teaching are the first steps on the way to building learning environments adaptive to user's needs.

Work on idea of reusable learning objects and its' repositories is the next problem for researchers and specialists in informatics; working out such repositories would make creating e-courses easier and faster. Creating repositories of reusable learning objects is strongly connected with methods of knowledge management, so in this moment it is necessary to apply interdisciplinary approach to research on topics that are interesting from e-learning point of view. This interdisciplinary approach is necessary also in research on pedagogical side of e-learning.

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Anna RYBAK (on the picture at middle with just defended Master of Computer Science and colleague from the Institute) was born in Bialystok (Poland). She graduated from Warsaw University in computer science. Qualifications for teaching of mathematics in Postgraduate Studies for Teachers in 1983. She received her doctoral degree in pedagogy in 2003 from the University of Bialystok, Faculty of Teacher Education and

Psychology; title of dissertation: 'Modeling Method and Modern Technologies of Information Processing in the Educational Process', her research areas are: different aspects of usage of multimedia in education, effectiveness of technology aided education and individualization of learning in intelligent tutoring systems. She is teaching (presently) courses on E-learning Systems, Knowledge Management Systems, Intelligent Multimedia Tutoring Systems, Expert Systems, Multimedia in Education and Didactics of Mathematics.

She works on EU projects are "Adaptive Multimedia Tutoring System (AMTS)" - project submitted to Brussels in FP7 in 2008 in the field Cooperation/ICT, Nr in Brussels 231801–not supported. "Modern and Effective Education in Cooperation with SMEs" - project submitted in 2009 to Polish Department of Science and Higher Education, supported by European Union, now in accomplishment at University of Bialystok; she is a coordinator of this project. In addition in 2008 she was working in the National Programme Foresight Poland 2020 as an expert in ICT area and she lead in her institute the monthly seminar for math teachers who want to use computers in their work with students; since October 2008. She invited also groups of students for special seminar "How computer can help us in math learning". She has a membership in associations such as Association for Computing Machinery (ACM), Association of Academic E-learning, Association of Math Teachers, and Polish Mathematical Society. She has many national and international studies which some of them Computer on Math Lessons, 2001, Manual for Math Teachers in Vocational School, 2002, (as co-author; author of part about using computers in education), Manual for Math Teachers in Secondary School, 2005, (part of the book and CD joined to the book, contained Polish versions of educational software and didactic materials with example of using this software in math education), and about 20 articles about multimedia in education, including distance education and intelligent multimedia systems.

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CHAPTER-28

eLEARNING IN ROMANIA-I

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ABSTRACT

The most recent and significant innovation introduced in education refers to the use of ICT for teaching, learning, assessment, and for administrative tasks complementing the education process. Due to the complexity and continuous advancement of the technologies, this innovation remains a part of everyone's life from the first years of schooling and continuing with professional activities and self-development. It is a cycle of development, with increasingly faster frequency: the improved formal education context raises creativity and autonomy of graduates. Therefore, better prepared human resources innovate and push further the (technological) limits, and consequently the new technologies and methods are incorporated in the education system, helping new generations to become innovators.

This chapter focuses on the use of ICT in Romanian education system, presenting the relevant programmes, projects and initiatives, and using research data from several reports released in the last years.

Being aware that innovation related to the use of ICT in the education system is still at the beginning, we tried to bring forward the landmarks of the early stages this transformation, convinced that time will settle practices and theories which would put strength on the development of students' key-competencies.

In our opinion, the new technologies are an invitation and an opportunity for teachers and for education decision-makers to think deeper about education practice, to re-invent and to discover the real Pedagogy. First steps are already done in Romania, but many more are still to be developed, aligned with international experiences and initiatives, and adapted to the local context.

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COUNTRY

Romania is the second largest country in Central and Eastern Europe -with a population of 22 million inhabitants- and the 19th largest economy in Europe by total GDP. The capital, Bucharest, is one of the largest financial centres in the region, with around 2,1 million people.

Figure 1.
A map of Romania

The country is in the process of comprehensively reforming and restructuring its economy, significantly increased by the European Union joining in 2007. As part of this effort, the Government is seeking to build institutions and design and implement public policies to fundamentally transform Romania's economy and society.

EDUCATION SYSTEM

The Romanian education system has an open character and includes public and private education units and institutions. Public compulsory education is free of charge. The pre-university education system also includes related units: "Houses of the Teaching Staff" (teacher training centres), County Centres for Pedagogical and Psychological Assistance, logopedic centres, School Inspectorates.

Starting with the school-year 2003-2004, a new structure of the Romanian education and training system was implemented, according to the Law no. 268/2003 that modified the Education Law no. 84/1995 by:

- extending the compulsory education from 8 to 10 grades (school years);
- starting age of compulsory schooling at 6, instead of 7 years old;
- changing the structure of upper secondary education: the first phase (2 years) becomes compulsory schooling and the second phase (2-3 years) is non-compulsory;
- establishing the structures and routes for vocational training, by creating the Arts and Crafts Schools (replacing the apprentice schools and the vocational schools).

Pre-school education (ISCED level 0) is organized for children aged 3-5, in kindergartens with standard, extended or weekly programme. Children participation in preschool education is optional. The overall participation rate is around 70%, while the participation rate in the last year of kindergarten (school preparatory year) reaches more than 90%.

Compulsory education is organized in schools as full-time education, lasts 10 grades and includes: primary education (grades 1-4, ISCED level 1) and lower secondary education (ISCED level 2), comprising two phases: gymnasium (grades 5-8) and the second phase of lower secondary education (grades 9-10, the lower cycle of the lyceum or the Arts and Crafts School).

Upper secondary education (grades 11-12/13, ISCED 3) is organized in highschools (4-5 years) or in Arts and Crafts Schools (2-3 years).

Post-highschool education (1-3 years, ISCED 4) comprises tertiary education, non-university level, organized in post-high school and foreman schools.

University education (ISCED 5, 6 and 7). Starting with 2005, the structure of the higher education was revised in the framework of the Bologna process; therefore, beginning with the university year 2005-2006, the higher education in Romania is structured on three cycles (excepting the fields of studies particularly regulated in accordance with the European Union provisions): Bachelor (3 years of study), Master (2 years) and Doctoral studies (3 years). The structural reform is accompanied by a curriculum reform.

ICT IN EDUCATION

In 1998, the framework for compulsory education was designed and approved and a new curriculum was implemented starting with 1998-1999 academic year. This was an opportunity to put emphasis on sustainable knowledge, as well as on acquainting students with new electronic means of manipulating the information. The improvement of school infrastructure and the connection of educational institutions to Internet have been the goals of two major-impact programmes: SEI (*Sistemul Educational Informatizat-* Education IT-based System) and RoEduNet (extending of Romanian educational information network). Beside these programmes, initiatives and projects aiming to support the innovation in education were undertaken by various institutions and individuals.

Romanian Education Network programme -**RoEduNet**- was initiated in June 1993 and began with the installation of the Central Node at the University Politehnica of Bucharest. From the very beginning RoEduNet was conceived as an open structure, offering free access to the academic, scientific and cultural non-profit institutions; once the first institution was connected – the University of Bucharest, August 1993 – the nucleus of the academic data communication infrastructure was created. The structure remains open to all universities as well as to non-profit scientific and cultural institutions. A large percentage of the education institutions in Romania are now connected to the Internet through RoEduNet.

In 1990, the Institute for Education Sciences, with UNESCO support, was implementing the first research project concerning the use of computers in schools, providing equipments for 6 school labs and then organizing 2 disseminating conferences.

Especially before 2000, private initiatives supported some projects aiming computer integration into educational activities, most of them providing funding for computer acquisition. For example, Procter & Gamble selected 160 schools based on a competition of proposals (P&G project).

Approximately 800 computers (5 per school) were provided by P&G in partnership with MoE, IBM, Xnet (local ISP founded by a GSM operator), ProTV (local television) and Save the Children Foundation. Several applicant schools expressed their intention to use computers for community benefit, training parents or using the labs to offer multimedia services at low prices.

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Figure 2.
RoEduNet, 1993

ROEDUNET Backbone Topology

256 kbps
2Mbps

The 256 Kbps lines to
the POPs are pending
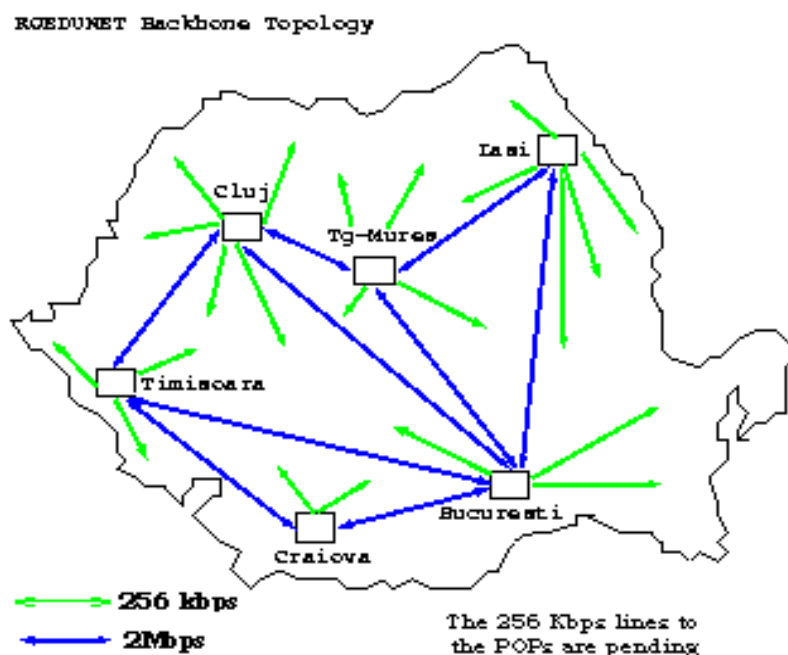
In early 90s, a project is funded by Soros Foundation were set up with the
intention of promoting new ICTs for teaching and learning. 314 schools were
equipped with IT labs comprised of 10-20 computers during 1992-1996 and
teachers were trained to use UNIX. Satellite antennas were set up for
communication between schools, in 4 main cities in Romania (Bucharest,
Iasi, Cluj, and Timisoara). The total budget was around 4 million USD. A
similar relevant example can be picked up also from the middle 90[s], when a
non-governmental organization provided computer networks to schools,
accompanied by IT training sessions for teachers. At that time, a number of
110 computers were placed by EOS Foundation in Romanian schools. EOS
is acting now in Timisoara, delivering teacher training courses in using ICT
for education. Since the 90th, within the framework of European programmes
such as Socrates-Minerva, eLearning, eContentplus, FP5, FP6 etc., series of
projects were developed in partnership with institutions from other European
countries.

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Another relevant example could be picked up from the latest years, when there could be noticed a general trend shifting from the access to technology (equipping schools with ICT tools) to the access to quality eContent and to virtual learning spaces. For instance, in 2005-2007, Take Part Too project, partially funded by the European Commission through Socrates-Minerva, was implemented in Romania by the Institute for Education Sciences and TEHNE- Centre for Innovation and Development in Education, with partners from UK and Denmark. Take Part Too project aimed to provide young people the opportunity to take active and responsible roles in European multicultural societies, by creating an ICT based platform for collaboration, exchanging opinions and decision-making on local and global issues. The "simulation game" Take Part Too was played by 14 to 18 year old learners and their teachers (facilitators) in three different countries: Romania, Denmark and UK.

SEI Programme
Enhancing education with new ICTs was stated in 1998 by the Ministry of Education and Research as a priority and concrete actions were taken beginning with 2001. The premises and incentive of SEI national programme are three-folded, based on: the social and political commitment (harmonization within EU framework principles, objectives and actions), the e-readiness objectives and the education process efficiency development.

The goal of SEI programme is introducing IT as a teaching/ learning tool in lower and upper secondary education. Schools are provided with computerized laboratories in order to support the IT-Based teaching/learning process. Besides the availability of technology in the school, it aims to establish a high level of interactivity and direct, personal experimentation of phenomena and scientific theories by learners.

The program was approved in early 2001 by the Information Technology Promotion Group -a task force composed of several Ministries and presided by the Romanian Prime Minister- with an initial estimated budget of 200 mil. USD. It is implemented in partnership by the state administration and the private sector; the main companies involved being SIVECO Romania, HP and IBM.

Several programmes' components were run since 2001 -equipping schools with IT labs, developing educational software and eContent, training human resources, connecting education institutions to the Internet, continuous technical support-, and important goals were achieved:

- 4.780 IT labs, each comprising a network of 15 to 25 computers were delivered and configured (a total figure of 78.000 computers),
- basic operating software was installed on every computer,
- AeL learning (and) management system was installed on every network,
- 65.000 pre-university teachers were trained,
- 1.674 multimedia lessons for 10 curriculum subjects were elaborated considering rigorous pedagogical principles.

Figure 3.
The Avarage of SEI components within the project
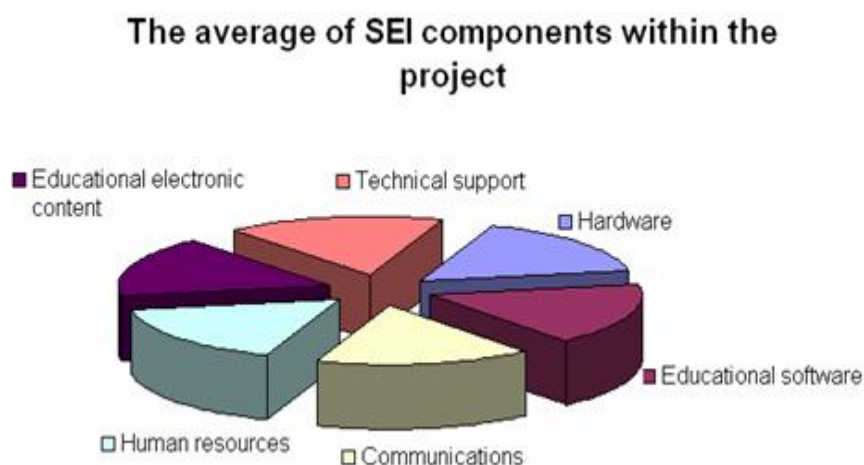
Within the SEI programme, there were also developed additional projects such as: the national computerized evaluation of text-books (EvalMan), high-school computerized admission (ADLIC), IT support for the national contest for vacant teacher positions in all Romanian schools, the development of SEI education portal etc.

Elearning.Romania Programme
Elearning.Romania is an initiative of several civil society institutions (TEHNE-Centre for Innovation and Development in Education, ASTED-Association for Education Sciences, National Foundation for Community Development), developed in collaboration with two research centres in universities (University of Bucharest, University "Politehnica" of Bucharest)

and with a national research institute in education (Institute for Education). Decision-makers, academics, researchers, practitioners, opinion leaders and educational software developers were involved within a community meant to share resources, since the beginning of 2006, when the programme started. Other institutions from private sector supported this initiative (Altfactor Ltd., Agata Publishing House).

Figure 4.
Elearning.Romania portal

Elearning.Romania programme aims to raise the quality and the efficiency of the computer-assisted education area, through offering theoretical support, disseminating best practices and significant local elearning experiences, continuous informing regarding the events and relevant announcements, promoting available solutions, systems and services for elearning. The Elearning.Romania community complements the efforts of the governmental institutions in charge with the policies and strategies having a strong elearning component.

Knowledge Economy Project
The Knowledge Economy project is implemented by the Government of Romania, through the Ministry of Communications and Information

Technology (MCIT) and is financed by the World Bank with a total budget of USD 70 million. The KE project (with a life span from 2006 to 2010) aims to support knowledge-driven activities at the national level, as well as directly within local communities, and in particular to accelerate the participation of knowledge-disadvantaged communities in the knowledge economy. The target groups are around 250 rural and small urban communities in Romania, where there will be established Local Communities e-Networks, through which rural communities will be ensured access to knowledge through a number of services and technologies, including computers, Internet services and specific content provision for different target groups (citizens, businesses and pupils). The project has a strong education component, which aims to pilot "an education model based on teaching and learning through ICT" through the integration of computers and Internet access within the primary and lower secondary schools. Even though the project started more than three years ago, little information about the progress and achievements is available yet.

CURRENT SITUATION

The major needs addressed in the respect of using ICTs for instruction are referring to the appropriate educational software, the skills to use it and the competences for teachers to build learning situations using various IT tools. Diverse support measures, teacher-training programmes and computer-based learning material development projects are only parts of the introduction of ICTs in the classroom process. Various usages of ICTs in education system give the measure of the complexity of this activity; studies and reports are available in Romania, referring to the implementation practices, effects, stakeholders' perception and practitioners' opinions.

portal.edu.ro
A communication platform for pupils and teachers was set up in early 2002 at portal.edu.ro address, as a portal for SEI programme, to support the education system by providing teaching assistance materials, facilitating some administrative activities, encouraging the flow of information etc.
The platform currently reaches 3 million pages visited monthly. A number of over 150.000 user accounts -mostly teachers and students- are currently active on the SEI portal.

AeL
AeL (from *Advanced eLearning)* is the core of the SEI programme, offering support for teaching and learning, evaluation and grading, curriculum design

and content management, but also for process management and monitoring, for administration, and also providing the tools for communication and synchronization between the local solutions within the national SEI framework. Within AeL application, the local, regional and country administration is provided with managerial and administrative support. The IT laboratories (local solutions) are integrated into a logical network comprising all the schools in a county. All Romanian counties are integrated into a national network connected to and coordinated by the SEI management unit located in MoE.

Educational Software
Some documents, surveys and discussions of the latest years revealed that teachers request every subject matter dedicated software modules educational content and electronic tests. The lessons prepared and delivered so far in high schools are not sufficient, but, on the other hand, one or two computer laboratories in each school cannot cover the eventual necessary study hours needed to be completed with computer assistance. Furthermore, there is to be noticed a lack of integration of ICTs in a way that creates new educational situations in subject areas other than IT-specific.

Among the pedagogical methods that have been implemented in the high-schools, there are: the tutorial strategy, including dialogs, where the computer is used to teach part of a subject; drill and practice; the use of databases as a resource; modeling and simulations, either in the guided discovery mode or in the insight development mode. None of these techniques is exclusive and using a simple or a mixed strategy depends on the subject, the pedagogical aims, the time available, and the age range of students. As with other aspects of computer-based learning in Romanian high schools, our knowledge is far from complete and therefore several directions should be pursued.

The existing computer-based programme developed by SIVECO and distributed in high schools integrates learning modules from both two main categories that represent two different approaches to the use of computers for education.

In one category, unfortunately less exploited than it should be, the computer is used for teaching and learning a certain amount of information/ knowledge and in this case the software includes modules that are able to check students' progress, offer help and assistance with learning, assist pupils facing problems related to the material comprehension, etc. Pace may vary

from group to group or learner to learner, and even mastery learning is presented as being possible for all students because of the highly interactive capabilities of the computer and the possibility of setting up individualized training routes. In this case, the pedagogical strategy is included within the program (Noveanu, 2003). It should however be emphasized that this kind of practice is yet far of its potential and even far from its declared success in actual classrooms.

In the second category the user is expected to learn from the use of the computer, but the computer is not expected to teach anything. The teaching process, the checking of the learner's progress, the assistance of those with learning problems and the presentation of various learning approaches are left to the teacher. The software allows the user to ask questions, to undertake experiments, to explore the area of knowledge, to ask for exercises of different levels of difficulty etc. and the user is expected to do so as various steps of a pedagogical strategy which has been defined by the teacher for that particular moment.The computer-based learning modules of the second category are much easier to design and implement, mainly because each module is a single step in a pedagogical strategy the developer might not be familiar with, and not a set of steps defining a complete pedagogical strategy as in the case of first category.

Moreover, the software modules are much shorter, firstly for the above reason and secondly because the computer asks no questions, therefore there is no need for extra-pieces of software devoted to the student's answer analysis.In the first step now being completed in Romania, much of the software produced consists in pieces related to the compulsory curriculum objectives.

There are two problems on which teachers usually put emphasis on:

- The regular use of this software doesn't allow teachers to attain the learning objectives, partially due to the limited time and the overloaded compulsory curriculum, and partially due to the uncertainty of teachers in using such new tools, conducting to time-consuming computer-assisted teaching activities.
- The rapid changes of compulsory curriculum for some disciplines maintain a distance between the learning objectives and the content of educational software provided by MER.

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Figure 5.
Screenshot from educational software available to schools

Along with the management and delivery of various content types such as interactive multimedia, tutorials, exercises, simulations, educational games etc., AeL allows the development of various learning modules. Within the limits of their confidence, skills and know-how, teachers can:

- create content (built-in HTML editor, mathematical formulae editor, test editors and wizards, glossaries/ dictionaries editor);
- import/export content from files, archives/folders of resources, standard packaging formats;
- adapt or modify content;
- derive their own courses from common content components.

Content can be structured and adapted upon teacher's needs, and enriched with metadata related to curricula, keywords, version, author etc. Access privileges on user/user-group level may be applied to any part of the knowledge base.

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The knowledge base may be browsed hierarchically, filtered or searched. Tests are integrated with study records, the system keeping track of each student's history and evolution.

After the initial phase of development and implementation, AeL was re-considered in the view of strong pedagogical and psychological basis for further curricular content. More than an option, the pedagogical principles integration is recognized today as a must for high-quality added value of educational software to be used in the Romanian education system.

ICT IN HIGHER EDUCATION

Regarding the higher education system, the level of implementation of the new learning technologies as well as of up-to-date ICT infrastructure is quite high, mainly due to the involvement of Romanian higher education institutions within European and international projects in the field of technology-enhanced learning or aiming at institutional development. Beside the know-how transfer, the higher education institutions benefit of higher funding resources through these programmes that increased substantially the funds received from the Romanian Government through different national programmes.

Consequently, all of the higher education institutions have set-up Distance Education departments and some of them Technology Enhanced Education units that deal with the implementation of the new teaching methodologies within the traditional education activities. Some of the already "historical" initiatives in the field of implementing ICT in higher education are presented here. We must say though that nowadays, a lot of quality elearning programmes are operational within universities; legislative regulations are yet awaited for these programmes to rise.

CREDIS
(Centre for Resources, Documentation, Information and Services for Open Distance Learning) The Open Distance Learning Department of the University of Bucharest was established in 1994. It offers various distance courses, either initial, continuous or post higher education. By the Governmental Decision 944 /29 Aug. 2002 the University of Bucharest has 15 authorized specializations to function by distance education. The distance education programs have comparing to the regular study program the same curriculum, the same specialization, equivalent diplomas, all the rights of the graduates assured by law.

The distance study program offered by CREDIS provides specific resources, individual learning tutoring, bi-directional communication and self-assessment facilities. The new ICT tools used are: CD-ROM, e-books, audio-video tapes, websites, and virtual laboratory. Formative assessment methods are used, as well as final examination. The elearning platform can be found at http://portal.credis.ro

SNSPA
(National School for Political and Administrative Studies) As an example, the Faculty of Political Sciences from SNSPA have also on distance education program for post high education level. The admission procedure takes into account the Bachelor diploma marks as well as the results of a short interview according to a fix number of places. It also provides tutorial facilities (specialty guiding and coordination of the student), run by university teachers and researchers. The curriculum is the same as for the regular study program and ends with exams accounting a certain number of credits. The program is flexible with regard to the dates of the exams, recognition of the diplomas and opportunity to enter the regular study program. Any student may take the diploma exam proving the accomplishment of the required number of credits from the analytical curriculum aside the students from the regular study program.

Romanian-European eUniversity
University Politehnica of Bucharest has various different type projects in the field of elearning. The most visible is the Socrates-Minerva project "Romanian-European eUniversity" (RE2U), launched in October 2002.

RE2U (http://www.reu.pub.ro/re2u) intends to promote a critical and responsible use of ICT to support the innovative processes of the Romanian higher education system required in view of its full adaptation to the changes occurring in the economic and social context. It aims at developing a Romanian virtual university based on state-of-the-art innovative teaching and learning methodologies and emerging ICTs.

The main challenges undertook by the Romanian-European eUniversity initiative (as stated by the project team) are:

- to design and implement a platform that will foster the inter-institutional collaboration at national and international level;
- to establish the capacity of quality content production and quality services provision in a national and international partnership context;

- to build a training system for the higher education teachers and trainers on the use of ICT for learning;
- to accompany Romanian higher education institutions in their process of institutional, organizational, pedagogical and economic innovation.

ASE-Academy for Economic Studies
ASE is one of the first universities from Romania establishing a distance education department. Yet it was mainly about the correspondence education than using modern information and communication technologies. Today, ASE has several virtual campuses for students, offering also support materials for learning.

TEACHER TRAINING

Most of the teachers and school managers complain about the difficulties in working with the educational software provided by the MoE and about the lack of resources allocated for upgrade, for software acquisition from the free market, and for appropriate training. Other sources indicate that the computer labs and AeL platform is underused by teachers and pupils in high schools. Also, punctual questions reveal that, with some interest, teachers can easily overcome the problems and set up good classes within AeL labs.

The implementation of the SEI programme is a complex process and there have been many critical aspects to be dealt with during its various phases, derived from the programmes' scale.

In spite of the difficulties, teachers and schools staff is optimistic. They consider that time and decision-makers are able to solve the gaps of the school computerization process through a proper policy. Until then, more and more students are able to have their own computers at home, supported by the parents and pushed by the labour-market demands to gain more experience and ICT skills, an increased rhythm of learning and formal curriculum integrating ICTs risks to remain behind, old-fashioned and not attractive.

For having the teachers' support, actions have been taken in several directions, at national and regional level and in each school: mass-media campaigns, training of teachers and administrative personnel, dissemination sessions, seminars and workshops.

A very strong emphasis was put on the acceptance of technology as a special tool (considering its power). The main issues identified are:

- Fear for "replacement of the teacher by the computer"
- Fear for "the unknown".

MoE is currently implementing two methods for gaining teacher acceptance for the program:

- AeL training offered within SEI is officially equivalent with the courses that are mandatory for teachers within continuous training programs;
- Teachers receive special financial benefits for classes taught using computer-assisted learning (e.g. 1 physical hour of teaching is counted as 1,25 teaching hours etc.).

Curriculum limited to general use of computer, as ECDL, ICDL or comprising information about standard application packages as Microsoft Office, is often delivered within teacher training programmes, instead of CAI curriculum. Even in the Teacher Training Departments of the best Romanian universities it is still preserved confusion between being PC literate and knowing how to use computer to design and to support learning situations.

Most of actual in-service and pre-service training courses for teachers focus on computer literacy, emphasizing general tools, such as word processors and databases management systems.

SIVECO's training programme, implemented in high schools as part of SEI programme, has particular characteristics, being designed to prepare teachers to handle with AeL program and comprising a mixture of computer network administration, computer literacy and information about how to use the lessons provided and how to create their own electronic content for classes. Anyway, the principals complain about insufficient training oriented on gaining practical skills to use computers for different subjects. The improvement of teachers' competencies through this kind of distance courses has not been yet the object of a proper evaluation, but there is an obvious implicit formative aspect that resides in achievement of increased digital literacy.

On the other hand, the opportunities and experiences offered by such programmes keep educators and learners' expectations at a high level,

avoiding acceptation of poor e-learning products such as digital page turners, computerized frontal teaching, low quality content etc.

Pre-service Training

According to a recent order of Ministry of Education the pre-service teacher training programmes provided by the Teacher Training Departments has been reorganized. The new curriculum includes a compulsory course of "Computer-Assisted Instruction". The difficulties of developing and supporting an appropriate training course of Computer Assisted/ Based Instruction (CAI) stem from the lack of specialists and the lack of sufficient adequate software to furnish examples of a variety of types of usage in a specific academic area. Some Teacher Training Departments within universities provide a CAI course, but most of them deliver PC literacy content under the name of Computer Assisted Instruction.

In-service Training

The in-service teacher training can be organized by Teacher Training Departments in universities, by Teachers' Houses (a support structure of the education system, comprised by one resource-centre institution in each county), by NGOs and by companies, through accredited training programmes. The need to provide more opportunities for in-service teachers was addressed by an early initiative to create a Distance Education Centre within the Institute for Education. The intention was that teachers would receive training in a series of modules supplemented by continuous tutoring. These activities were not continued, due to the lack of political and financial support.

TRANSNATIONAL PROGRAMMES

Romania is part of global and European education initiatives which brings closer innovation, creativity, competence and commitment, in an effort to raise the quality and the equity of the education system and to complement the governmental steps towards developing an authentic knowledge society. In particular, two programs have a visible impact on the education practice, contributing to the improvement of the classroom teaching, learning and assessment on the new co-ordinates set up by the 21st Century: development of new competences for future professionals, introduction of computer-assisted education, and increased importance of non-formal learning.

One of them is the **eTwinning project**, and European initiative aimed to link schools in order to develop collaborative projects involving students, and the

other one is **Intel Teach program**, aiming to prepare teachers to better use pedagogy and ICT to create adequate learning situations.

The two demarches complete each-other and overlap to a certain extent, one creating the premises for hands-on activities with pupils using the ICT and especially the Internet for collaborative activities, being based on the project-based learning method, and the other setting-up the theoretical frame and the pedagogical tools needed by teachers to educate in the 21st Century.

The first one is a community of schools and teachers, the second one prepare teachers to use new ICT tools to co-operate and to develop collaborative projects with their students.

Furthermore, both initiatives are putting stress on the learner-centered approach and on the transversal competences as a result of learning: communication and social skills, using new technologies, critical thinking, collaboration, creativity.

eTwinning
eTwinning has an innovation and creativity dimension, addressing an area of the formal and non-formal education at the very heart of the on-going reform, allowing experimentation of new ways of teaching and new ways of performing traditional tasks. Being part of Life-long Learning Programme, accompanying Comenius action, the main aim of the eTwinning program is to facilitate communication and cooperation between schools in EU countries, involving students in new learning activities: creation of various collaborative educational projects with the use of ICT. So far, around 4000 Romanian teachers, from both urban and rural areas, initiated and participated in eTwinning projects together with colleagues from around Europe. The eTwinning projects promote the use of ICT for development, allowing schools to incorporate innovative practices with impact at students and teachers levels, but also at institutional level.

Participation to eTwinning allows pupils to learn using the new technologies, to communicate with their peers from other countries, to acknowledge other cultures' elements, and to improve their competences of communication in foreign languages.

As indicated by their teachers, the students' enjoyment and motivation to accomplish learning tasks is significantly improving when they are involved in such collaborative projects.

The teaching methods are also diversifying, becoming more efficient and motivating for learners, as a result of experience exchanges between teachers within eTwinning partnerships and professional development activities. Not least, the online twinning of schools allows the transfer of information and good practices at institutional level, having also, in some cases, an impact at community level.

As stressed by the Romanian Minister of Education (March 2008), eTwinning initiative is a way to capitalist upon the investment in ICT equipments for schools -the Romanian IT-based Education System program- providing teachers proper pedagogical instruments to develop significant learning situations for their students.

Intel Teach
The support offered by Intel programs in Romania complements the demarches of implementing ICT in education, creating the premises for adequate education reform. The areas of support shows the concern and the added value provided by Intel to Romanian education system in the last years: development of education policies towards implementing education solutions for XXI century, teacher training programmes, access of teachers and students to reliable IT equipments, access to Internet and knowledge, support for education process through offering pedagogical materials for teachers, supporting Science education through participation to the International Science and Engineering Fair (the world's largest pre-college science competition), establishing a common arena for eLearning stakeholders: education policy makers, researchers, teachers, education software developers, opinion leaders.

Intel Teach programme was accredited by the Ministry of Education, Research and Innovation in 2007. Implemented by SIVECO Romania and with the support of the County Teachers' Houses, the Teach Essentials course is run all over the country and the Romanian teachers are part of a global initiative which trained over 7 million teachers around the world. This coverage and impact have led Intel Teach to be called the most successful professional development program of its kind.Within this initiative, along with the continuous teacher training activities, Intel was supporting the localizations of two significant packages of support-materials for teachers: Designing Effective Projects and Assessing Projects. Romanian teachers have access to pedagogical instruments, education projects templates and examples, in an extended range of curricular domains and levels.

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CONCLUSION

European working documents reviewing countries progress in implementing ICTs in education system noticed that equipment is usually the first item on a policymaker's agenda. EU member states are, however, reporting that investing in equipments only, even to begin with, is not the best option.

The focus must be, from the very beginning, on the educational uses of ICT. It has been increasingly recognized that the main challenge in the integration of ICT is not introducing the hardware, but getting the staff ready and developing educational uses that will effectively contribute to the attainment of the fundamental educational objectives and the evolving needs of learners.

The real impact of evolving technologies upon education and training systems, as most of the researches envisage, refers to the shift in considering education for all, consisting in the empowerment of individualized instruction, stimulation of creative potential and cognitive skills for future knowledge-builders, development of competences and skills for life-long learning.

Nowadays, most of the Romanian efforts in the area of elearning are directed towards educational use of ICT. A coherent strategic document dealing specifically with technology-enhanced education is under development and its policy recommendations could represent the accent needed for a responsible usage of computers and Internet for education purposes, on a large scale. But the sustainable results could only be achieved through a more pro-active attitude of education policy makers, of the education practitioners and of the entire society, because such a shift goes far beyond a simple governmental decision and the education renewing is not the responsibility of a single institution.

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CHAPTER-29

eLEARNING IN ROMANIA-II
Past, Present and Future

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ABSTRACT

In the first decade of the 21st century, worldwide, the tremendous increase in the amount of available information and the spreading of the e-learning was possible through the enhancement of the access to computers and to Internet. This fact indicates a reality that became more and more stringent and that cannot be ignored.

As an EU member, Romania needed to face a great number of challenges linked to the ICT spreading and the development of a knowledge-based society. These challenges were integrated into national programs and were supported by general actions. E-learning became a common place and a widely spread educational tool. The present chapter tries to offer a snapshot of this very dynamic component of the Romanian educational reality.

INTRODUCTION

In the last decade, the exponential growth of the virtual space, of the Internet and the broadband communication can lead us to the idea that two societal models are available: a *society based on information*, and a *society of knowledge*. Which one is the most appropriate and which one is the most suitable as a developmental model?

A rational analysis, the reality indicates that the humanity is moving towards a society where media are more and more influent, where the ICT and databases are widespread in a "savage" manner, and the Internet is shaping in a negative way individuals' temporal and cognitive perception.

The scenarios describing the two different societal evolutions can be advanced as follows. Either we evolve in the same manner towards "the same society overloaded with information, a society for which we can predict an overwhelming amount of information, characterized by a decrease in the quality of communication, inter-human and intercultural relationships, […] with very few rules and with "relaxed" ethical standards; or "we evolve towards a society of knowledge, where we rejoice a rational structure of information and an interconnection for developing tools that can make knowledge and inter-knowledge easier" (Cucos, Ceobanu, 2009, 310-311).

It is obvious that he last one is the desired model. Each and every national developmental program must take into account this reality.

COUNTRY

Romania is a country situated in the South East of Central Europe, with an area of 238,391 square kilometers and with a population of 21.5 million inhabitants in 2009. Romania is the largest country in Southeastern Europe and has the 12th largest territory among the European states. Its capital and largest city is Bucharest with 2.2 million people. There are other 5 cities with a population over 300,000 people (Iasi, Cluj, Timisoara, Constanta, and Craiova).

A large part of Romania's border with Serbia and Bulgaria is formed by the Danube. The Danube flows into the Black Sea within Romania's territory forming the Danube Delta, the second largest and the best preserved delta in Europe, and a biosphere reserve and a biodiversity World Heritage Site.

Romania's territory is distributed roughly equally between mountainous, hilly and lowland territories. The Carpathian Mountains dominate the center of Romania, with fourteen of its mountain ranges reaching above the altitude of 2,000 meters.

Forests cover over one quarter of the country and the fauna is one of the richest in Europe. 39.2% of Romania's territory is arable land, 28% forests, 21% pastures, hayfields and orchards and 2.5% vineyards.

The dominant religion is Orthodox (Eastern Orthodox 87%, Roman Catholic 5%, and Protestant 5%).

Figure 1.
A Map of Romania

Source: http://www.pickatrail.com/jupiter/map/romania.html

The official language is Romanian, a Romance language, related to Italian, French, Spanish, Portuguese and Catalan. Romanian is spoken as a first language by 91% of the population, Hungarian and Roma being the most important minority languages. Romania is a NATO member and has joined the European Union on January 1, 2007.

Romania's mineral resources are various: coal, crude oil, natural gas, iron ore, gold, silver, salt, etc. GNI PPP per capita, in 2008, was 13500 USD. The Romanian GDP per capita in PPS increased from 26% of the EU average, in 2000, to 47%, in 2008. Main Romanian industries are textiles, metal processing, light, constructing, manufacturing, mining, wood processing, building materials, chemical, food processing and petroleum refining machinery. Also, the Romanian IT industry has grown constantly.

Romania's main exports are clothing and textiles, industrial machinery, electrical and electronic equipment, metallurgic products, raw materials, cars, military equipment, software, pharmaceuticals, fine chemicals, and agricultural products.

The economy is based on services, which account 55% of GDP, even though industry and agriculture also have significant contributions, making up 35% and 10% of GDP, respectively. 32% of the Romanian population is employed in agriculture and primary production, which is one of the highest rates in Europe. Unemployment in Romania was at average 6.3% in 2009, which is low compared to other European countries.

In 2009 Romania has suffered more than most of its neighbors in the global economic downturn. Gross domestic product contracted 7.1% in the third quarter of 2009.

EDUCATION SYSTEM

The Romanian *educational system* is regulated by the Ministry of Education and Research. There are 7 levels and each level has its own form of organization. Kindergarten is optional for children between the age of 3 and 7. Schooling starts at age 6 or 7 and it is compulsory until 10th grade. Higher education is aligned to the European higher education area. Literacy rate in Romania is 98%.

Allocation of 6% of GDP for education, introduction of new curriculum centered on competencies, promotion of performance-based education, quality assurance and stimulation of excellence in education, introduction of new qualifications through continuous education, the extention of further specialization and training are among the main priorities of development for education between 2009-2012. Improvement and diversification of the educational offer of the entire system of education and professional training in Romania is a key strategic goal and a necessary condition for implementing principles of long and medium term sustainable development.

In Romanian society it is widely acknowledged that education is a strategic factor of future development of the country by its contribution to multi-dimensional modeling of human capital.

The process of implementation of the objectives of knowledge-based society and of life-long learning has been supported by the following: Lisbon Strategy, Strategic Community Guidelines on Cohesion, EU's Commision Communication on Knowledge-based Society, Education and Trening 2010 Work Program, Lifelong Learning program 2007-2013, as well as the Bologna Declaration (1999), 2000 Millenium objectives, the UN Decade of Education for Sustainable Development 2005-2014 under the auspicies of the UN Economic Commission for Europe (UNECE).

A national objective for 2013 is the development of human capital and growth of competitiveness through correlating education and lifelong lorning with the labour market and developing opportunities for the future, more flexible and inclusive labour market. Promotion of continuous education through is a priority for Romania due to lifelong learning due to its remaining behind in participating in various forms of qualification, professional reconversion and training (5 times lower than the average in the EU).

Starting with the early 90's, demographics of Romania have been characterized by a decreasing trend: birth rate decreased and implicitly the natural growth and the annual growth rate of population. The entire school population has decreased simultaneously with school-age population. An overwhelming increase of higher education population has been registered. The educational attainment rate at all levels shows a growth reaching over 70% in 2008 (Figure 1.).

Figure 1.
Educational attainment in Romania, in the period 1997-2008.

Source: http://epp.eurostat.ec.europa.eu/portal
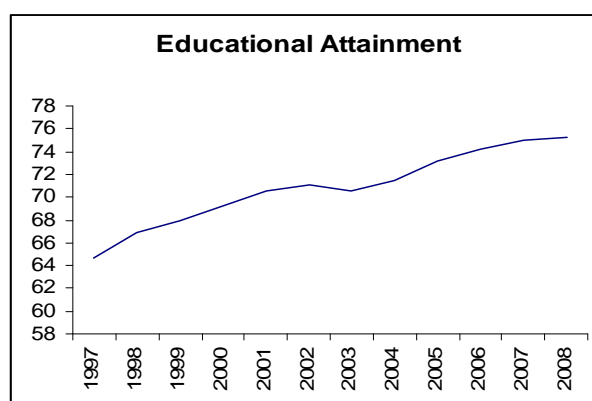
The educational system in Romania faces a set of diverse challenges, resulting in early school dropouts (Figure 2.) and irregular attendance or grade repetition, and also a rate of finalizing compulsory education lower than the European average.

Focusing on the dimension of schooling quantity, many policy initiatives have tried to increase the educational attainment of the population.

School dropout in first two levels of school
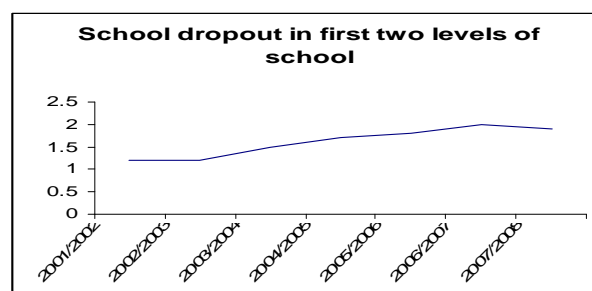
The amount of public spending on education diminished in 2008 its pace of growth compared to previous years. There has an important growth of allotted funds in higher education (as % of the GDP, for all levels of education), mainly from 2006 (Figure 3). The percentage of spending for tertiary education amounted in 2007 and 2008 approximately a quarter of total expenditure on education in comparison to 22% in 2006.

Total public expenditure on education
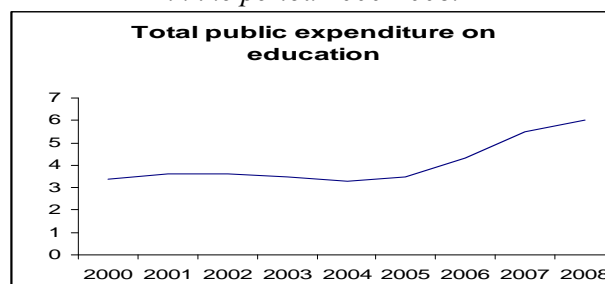
The increasing demands on education systems to meet the challenges set by the revised Lisbon strategy are likely to require additional sources of funding. Public expenditure on education in the EU-27 in 2006 was equivalent to 5.04% of GDP. Romania has been forced to revise many budgetary chapters and priorities in development policy after joining the EU. Education became one of the priorities. The educational policy in Romania is facing a great challenge.

The international trends in research and education -emphasizing the role of knowledge and innovation, the international trends on the labour market and the human capital, the cultural disparity and the disparity in development comparative to other EU countries are some elements that can prompt the leaders to re-consider the role of education, to implement an unprecedented increase of the budget allotted to education, as well as an institutional reform meant to increase the overall quality of the educational system. Compared with the European average, Romania allots education a far lower percentage of its GDP (Baciu L. et. al.).

The greatest discrepancy as compared to the European average is present in secondary education, where the need for financing is greater due to a higher rate in school-drop out.

TOWARDS A KNOWLEDGE-BASED SOCIETY IN ROMANIA

The knowledge-based society in Romania is an ambitious but justified goal for the future development of the country. The Ministry of Communication and the Ministry of Education efforts along with private companies' development, lead to a significant mutation within this domain. As a consequence of these efforts in the last years, the Internet penetration rate grows; today all the schools have an Internet access point and the development of the e-learning and the CAL, became an important goal within the national strategy of education The percentage of households having access to the Internet rose from 6%, in 2006, to 38%, in 2009 (Figure 4.).

Figure 4.
Level of Internet access of households, in the period 2004-2009.

Source: http://epp.eurostat.ec.europa.eu/portal
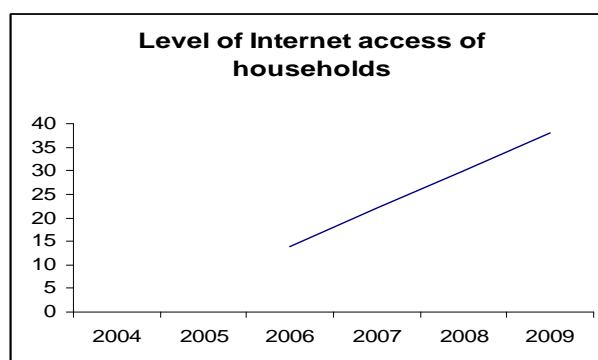
High-speed internet access is an important factor in productivity growth and stimulating innovation. The number of broadband access lines growth from 6.6 lines per 100 inhabitants, in 2007, to 10.7 lines, in 2008 (Figure 5.).

Figure 5.
Broadband penetration rate.

Source: http://epp.eurostat.ec.europa.eu/portal
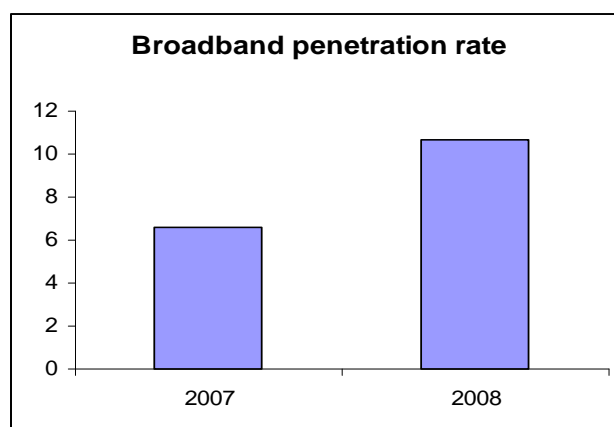
In Romania, a society built on knowledge should be also based on education, irrespective of the ways in which it is carried out. A society built on knowledge needs professionals to face new challenges and new information. An EU country that can successfully cope with the competition launched by the European Union needs active citizens to build a good future and give experts in any field.

A specific framework was designed for compulsory education in Romania in 1998; in 1998-1999, a new curriculum was implemented so as to stress the importance of acquiring computer skills, as well as obtaining and processing information and knowledge. Moreover, special IT equipment was provided to schools (especially computers) so pupils had access to it.

Developing the school infrastructure and the internet connection assured in many Romanian schools were the main goals of two major programs: SEI (The IT-Based Educational System) and RoEduNet (extending the IT network at a national level).

Furthermore, various institutions initiated and applied a wide range of projects that aimed at sustaining technological innovation in education.

We thus identify the most important ways that allowed TIC to be introduced in education as eLearning models in some studies (Istrate, O.):

- *RoEduNet* – is a programme initiated in 1993 and conceived as an open source that gives access to all educational, academic and cultural units. Once the first unit had an internet connection due to this network (Bucharest University, 1993), the core of communicational infrastructure for academic data was created. A large number of schools and universities in our country have an internet connection due to this programme which is still operational.
- *SEI (The IT Based Educational System)* -educational efforts intensified due to the use of NTIC which was considered to be a basic element in educational practice by the Ministry of Education and Research and coherent actions were carried out since 2001. The premises and motivations of applying the SEI programme at a national level were divided in three categories: social and political engagements (i.e. adjusting to the EU principles, aims and actions), the aims pertaining to training and the increase in educational efficiency. The main purpose of this programme is to introduce TIC as necessary instruments in the process of teaching-learning in secondary education. Schools are equipped with IT laboratories to sustain the TIC based learning process. Besides the technology available in schools, the project aims at establishing a high level of interaction and guide pupils to practical experiment and research of the studied theories and phenomena. Moreover, the programme is implemented by state administration and the private sector and the main companies involved are SIVECO Romania, HP Romania and IBM Romania. Several parts of the programme were carried out since 2001 (equipping schools with IT laboratories, developing educational software and e-Content, training human resources, connecting educational units to internet and ensuring permanent technical support), and the following objectives were met:
    - 4780 IT laboratories, each having a network of 15-25 computers, approximately 78000 computers were delivered and used;
    - Software systems were installed on every computer;
    - More than 65000 secondary education teachers were trained;
    - Approximately 1674 multimedia lessons were conceived for 10 disciplines, with the respect of teaching principles.
- *The programme eLearning.Romania* -eLearning.Romania is an initiative of several institutions of civil society (TEHNE -The Centre

for Innovation and Development in Education; ASTED-The Association for Sciences of Education and the National Foundation for Community Development), developed with the help of two university research centres (The Polytechnic University of Bucharest) and a national institute of research in education (The Institute for Sciences of Education). Its purpose is to develop quality and efficiency in computer aided education by giving technical support, instances of local significant eLearning experiences and solutions to the implementation of eLearning systems.

- The project *Knowledge Economy* -is implemented (between 2006 and 2010) by the Romanian Government and is financed by the World Bank, having a total budget of 70 million dollars and aims at sustaining activities that bring knowledge at a national level and at the level of local communities; it particularly aims at speeding the participation of poor communities to the acquaintance with the field of economy.

E-LEARNING AND ICT IN SECONDARY EDUCATION

To a certain extent, distance learning does not fall into the habits of the classical organization of face-to-face education. In most of the cases, the prerequisites of flexibility in education, the broadening of educational opportunities and education which is encouraged throughout the entire life of a person led to a peripheral position of this educational model in the context of usual teaching activities.

Along with the implementation of the „eLearning" model, distance learning and teaching moved from the periphery to the centre of training-educational approaches. As a result of the Internet boom, distance learning became a strong educational practice -now it is possible to learn by accessing virtual museums, by consulting tutors that can be found a few steps or thousands of miles away, by experiments in virtual laboratories and by taking part in debates and attending online courses.

It is clear that the maximum potential of online technology to increase the training and educational process does not consist in technical aspects, but rather in practical activities, approaches and examples given at the individual and institutional level. Both teachers and trainers are often attracted by eLearning just as a means to escape didactic routine or to make the daily educational-training activities more attractive.

The National Curriculum Council developed a new curriculum for the discipline of Information Technology at the end of the 90's (i.e. the use of NTIC). Thus, classes have in view a series of specific aims pertaining to programming languages.

The main requirements and expectancies for the efficient use of ICT in the educational process refer to the use of appropriate software, to the abilities and competencies to use it and to the teachers' capacity to create learning situations and didactic strategies by using the instruments of new technologies.

Olimpius Istrate identifies the main projects, on-line platforms, eLearning training activities implemented in Romania secondary education in the past years. Ergo, we are speaking of the following projects:

- *The Informational System of Educational Management* project, implemented as a pilot in 10 schools is designed to give suggestions to educational, financial, informational and administrative management at all levels of the national system of education. The project was included in the Reform of Secondary Education, the element of Management and Financing initiated and developed by the Government of Romania with the help of the World Bank. No information on the present use of EMIS is available.
- *portal.edu.ro* – a platform for pupils and teachers to communicate was established at the beginning of 2002 at (www.portal.edu.ro retrieved on December 20th 2009) as a portal for the SEI programme to sustain education and give materials for assistance in teaching, thus facilitating certain administrative activities, encouraging the circulation of information, etc.
- *AeL* (advanced eLearning) is the central part of the SEI programme in the teaching process – learning, evaluation, curriculum projection and organisation of contents. In AeL, local, regional and national governments receive managerial and administrative support. IT laboratories are integrated in a network that includes all the schools of the region. All Romanian regions are included in a national network, being connected and coordinated by the SEI management unit located in MEdC.
- *the ADLIC (High School Admission) Project* was firstly implemented in 2001 to support national admission and the distribution of middle school graduates in high schools and vocational centres.

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- *the EvalMan project (Evaluation of Textbooks)* gave IT support since 2002 for the recommendation and public acquisition of school textbooks in Romania. Publishing houses give anonymous books for evaluation and a software system makes random choices for each subject, i.e. a group of evaluators from a list of authorized competent persons.

Furthermore, the author assesses that certain documents, research and debates over the last few years show that teachers desire software modules for each discipline- having both an educational content and online tests.

The lessons prepared and taught in high schools so far are not enough and one or two IT laboratories in each school cannot cover the necessary hours of computer aided training.

E-LEARNING AND ICT IN HIGHER EDUCATION

Regarding higher education, eLearning and the use of ICT (through a relatively good infrastructure) show a high degree of update and implementation especially due to the involvement of Romanian institutions of higher education in European and international projects that had the use of informational and communication technologies or institutional development as their main aim.

The main higher education units formed distance learning departments (either at the central or faculty level), having well structured regulations and clear instructions to use ICT at their disposal. Moreover, the human resources involved in these activities are quite important and professional.

The most important programmes and approaches initiated at the academic level in the field of eLearning were identified in the literature of the field (Nistor, N., Banciu, D., Jalobeanu, M. and Istrate, O.,):

- CREDIS (Centre of Resources, Documentation, Information and Services for Open Distance Education). The Department for Open Distance Education at Bucharest University was founded in 1994. By Government Decision 944/29 August, 2002 the University of Bucharest has 15 authorized fields that are operational as distance learning. The new ICT instruments used are CDROM, e-books, audio-video tapes and virtual laboratories. The methods of training

evaluation are used as final examination, as well. The elearning platform can be found at the following address: http://portal.credis.ro (retrieved on December 20th 2009).

- SNSPA – The Faculty of Political Sciences of SNSPA also has a distance learning programme for the postgraduate level.
- The Romanian-European eUniversity -The Polytechnic University of Bucharest carries out various types of projects in the field of elearning. The most visible one is the "The Romanian-European eUniversity" (RE2U) Socrates-Minerva project, launched in October 2002. RE2U (http://www.reu.pub.ro/re2u retrieved on December 20th 2009) aimed at making the individuals aware of the importance of responsible use of ICT to back up the innovation processes of the higher education system in Romania for its complete adjustment to the changes occurring in the social and economic context.
- ASE-The Academy of Economic Studies – is one of the first Romanian universities to create a distance learning department. At first, it mainly consisted of education by post, and not of the use of TIC. Today, ASE has more virtual campuses for students and offers support materials for learning.

It is also important to mention a few things on the attitude and competencies of teachers in Romania when it comes to the use of TIC. By carrying out a few analyses of the educational context (especially in secondary education), we can hear at any time several teachers and headmasters complaining about the technical difficulties when using the educational software offered by MEdC, the lack of material resources allocated for the purchase of computers, software and appropriate training, the IT classes where theory cannot be combined with practice due to the low number of computers in school, etc. However, we have obviously evolved since 1990 but this is not enough if we consider the unceasing and inherent educational and cultural international challenges. They believe that time and decision factors will be capable of solving the gaps in the process of computer acquisitions in schools by means of a proper policy. We can also mention a training programme which was performed in June 2003, when a significant number of people (more than 65 000) was directly engaged by SIVECO experts to integrate the AeL software in education. More than 1 500 of them were part of the auxiliary staff comprising IT administrators, librarians and school secretaries. In each of the 1 400 high schools that received IT equipment, an additional number of 2 to 4 persons was trained by hardware administrators (Istrate, O., p. 11).

It is necessary for the aforementioned values in formal education to be perpetuated both in its formal and informal forms, i.e. those abilities that the pupil acquires in school during IT classes to be continued, exerted and well structured at home. No sooner than pupils have a computer at home, sustained by their parents and constrained by the demands on the labour market with respect to the necessity to have experience, will the formal curriculum be able to face all TIC requirements.

TRENDS & ISSUES

The documents which include the monitoring progress in implementing ICT in the educational system have underlined the fact that the equipment needed to sustain an eLearning platform is usually the main concern at educational policy level. The assuring of the needed equipment is, in most cases, considered the sole premise in consolidation of the educational systems. Educational practice shows that a serious investment in teacher's training is also a needed measure.

Thus, key goal for continuing the implementation of the e-learning in Romanian schools is the strengthening of teacher training programs for shaping the skills to use ICT and to introduce on a largely scale the eLearning. The developing of the eLearning programs is considered essential to all educational levels, in order to foster creative thinking in students, to stimulate their ability to cope with different learning activities, to develop their critical thinking.

In the context of changing the summative national assessments (and here we refer to the last changes for the high school graduates) among the main skills that must have a high school graduate, the use of ICT and Internet is one of the most important. This, to be implemented in 2010, will actually lead the above mentioned aims, as being imperatives for the entire range of teaching activities and for the Romanian educational system.

CONCLUSION

The information era make possible the enlargement of the information' accessibility by tools more sophisticated. Education is facing many challenges to make education relevant for the information society. In this society the citizens have to be life-long learners, the workers are expected to acquire independently knowledge and skills and to be able to communicate in a variety of contexts and using a variety of means.

This requires an important transformation of education and Information and Communication Technologies (ICT) can be the means to realize that transformation.

Thus, one of the goals of the educational system should be to prepare students for taking an independent and responsible role in the information society. This goal can be attained only if the students acquire the necessary skills for working with large amounts of information from a wide range of sources. ICT - mediated learning became an integral component of education and training systems. Moreover, with the rise of information and communication technologies era, new competencies became vital. Digital literacy, the ability to use ICT, is one of the most important.

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CHAPTER-30

eLEARNING IN RUSSIA

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ABSTRACT

The article is devoted to the history of distance learning development and to the current state of e-learning in Russia. A new classification of distance learning development stages is proposed by the authors. Authors highlight three stages of this educational form's development, comparing it with the stages of political, social, and economic changes in the country. In the second part, the analysis of the basic directions of development of e-learning is presented; each direction is explained by the most typical examples. Chapter is beginning with brief information about Russia and a structure of the present education system.

COUNTRY

Russia, also officially known as the Russian Federation, is a country in northern Eurasia. It is a federal semi-presidential democratic republic, comprising 83 federal subjects. Russia shares borders with the following countries (from northwest to southeast): Norway, Finland, Estonia, Latvia, Lithuania and Poland (both via Kaliningrad Oblast), Belarus, Ukraine, Georgia, Azerbaijan, Kazakhstan, China, Mongolia, and North Korea. It also has maritime borders with Japan (by the Sea of Okhotsk) and the United States (by the Bering Strait). At 17,075,400 square kilometers (6,592,800 sq mi), Russia is by far the largest country in the world, covering more than a ninth of the Earth's land area. Russia is also the ninth most populous nation in the world with 142 million people. It extends across the whole of northern Asia and 40% of Europe, spanning 11 time zones and incorporating a wide range of environments and landforms.

Russia has the world's largest reserves of mineral and energy resources, and is considered an energy superpower. It has the world's largest forest reserves and its lakes contain approximately one-quarter of the world's fresh water.

Figure 1.
A map of Russia

Source: http://commons.wikimedia.org/wiki/File:Rs-map.png

The country has 157,895 towns and villages. Russia's population, according to the latest figures available, is 132,000,000 people. Of these 74% (97,680,000) live in towns and town/villages.

Moscow 10,969,000, Moscow Region 7,900,000, St. Petersburg 6,897,000 Leningrad Region 3,350,000 The following towns have populations of a 1 million or so. Novosibirsk 1,391,900; Yekaterinburg 1,315,100; Nizhny Novgorod 1,278,300; Samara 1,139,000; Omsk 1,134,800; Kazan 1,116,000; Chelyabinsk 1,091,500; Rostov-on-Don 1,051,600; Ufa 1,022,600; Perm 990,200 and Volgograd 986,400.

Russia established worldwide power and influence from the times of the Russian Empire to being the largest and leading constituent of the Soviet Union, the world's first constitutionally socialist state and a recognized superpower that played a decisive role in the allied victory in World War II. The Russian Federation was founded following the dissolution of the Soviet Union in 1991, but is recognized as the continuing legal personality of the Soviet state.

Russia has the world's eighth largest economy by nominal GDP or the sixth largest by purchasing power parity, with the eighth largest nominal military budget or third largest by PPP. It is one of the five recognized nuclear weapons states and possesses the world's largest stockpile of weapons of mass destruction.

Russia is a permanent member of the United Nations Security Council, a member of the G8, G20, the Council of Europe, the Asia-Pacific Economic Cooperation, the Shanghai Cooperation Organization and the Eurasian Economic Community, and is the leading member of the Commonwealth of Independent States.

The Russian nation has a long tradition of excellence in every aspect of the arts and sciences, as well as a strong tradition in technology, including such significant achievements as the first human spaceflight.
(http://en.wikipedia.org/wiki/Russia. Retrieved 05.01.2010)

EDUCATION SYSTEM OF RUSSIA

In the Russian Federation, there are 180,000 educational establishments of all types and categories. About 35 million people or 23 percent of the total population of the country are annually involved in one type of education or another. More than 6 million people are employed in the sphere of education.

The socio-political changes that have been taking place in Russia and the transition to a market economy have led to a need to reform the education system. The Constitution of the Russian Federation of 1993 and the federal law On Education of 1992 and its 1996 revisions stimulated the democratization of life in educational institutions, extended academic freedom and institutional autonomy, and promoted the humanization of education.

The non-state education sector, including educational establishments founded by both individuals and by non-state organizations, has been developing rapidly. The Federal Programme for the Development of Education, aimed at the encouragement of innovations in all components of the education system, has been designed for the support of educational reforms. In recent years, the system of education of the Russian Federation has been undergoing drastic changes in the framework of the comprehensive transformation of the country as a whole.

The system of education in the Russian Federation comprises:

- successive educational programmes and the State educational standard;
- educational institutions in which educational programmes and the State educational standard are implemented;
- administrative and other bodies and organizations which govern the educational system.

In the Russian Federation, all educational programmes are of two types (Figure 2): general education; professional education (Retrieved 05.01.2010 http://www.gks.ru/bgd/regl/b09_11/IssWWW.exe/Stg/d01/08-10.htm).

General education is aimed at the intellectual, moral, emotional, and physical development of the individual; at shaping his or her general cultural level; at developing his or her ability to adapt himself or herself to life in society, and at the setting of the foundations which will enable individuals to make a conscious choice of a professional education programme and to cope with it.

General education comprises: pre-school education, primary general education, basic general education, secondary (complete) general education.

Professional education is aimed at the continued development of an individual in the process of which he or she acquires a professional qualification and at the preparation of graduates to exercise a profession.

Since in the Russian Federation all programmes, except general education programmes, lead to diplomas or to diplomas and degrees as well as to professional qualifications and give the right to exercise professions, they are called professional education programmes.

Thus professional education covers the following:

- vocational education;
- non-university level higher education;
- university level higher education;
- postgraduate education including doctoral study programmes.

(http://en.russia.edu.ru/edu/description/sysobr Retrieved 05.01.2010)

Figure 2.
Scheme of the Education System of the Russian Federation

(http://en.russia.edu.ru/edu/description/sysobr/902/. Retrieved 2010-01-05)
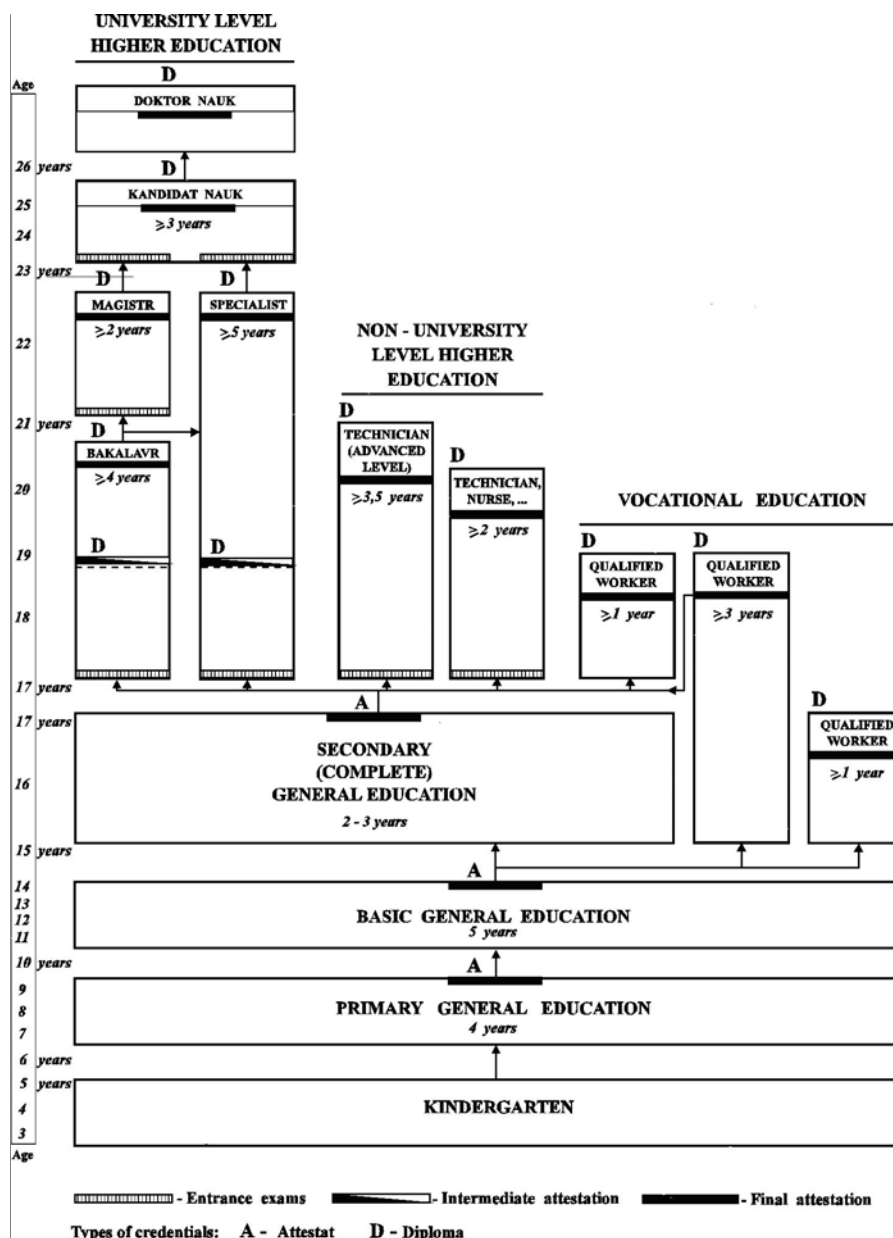
Table 1. Statistic data about higher professional education

	1993/ 94	1995/ 96	2000/ 01	2003/ 04	2004/ 05	2005/ 06	2006/ 07	2007/ 08	2008/ 09
Number of higher educational Ist. All all	626	762	965	1044	1071	1068	1090	1108	1134
Including:									
State and municipal	548	569	607	652	662	655	660	658	660
private	78	193	358	392	409	413	430	450	474
Number of students - all (thousands)	2613	2791	4741	6456	6884	7064	7310	7461	7513
Including:									
in state and municipal institutions	2543	2655	4271	5596	5860	5985	6133	6208	6215
From them it was trained on									
full-time attendance courses	1625	1700	2442	3010	3144	3195	3251	3241	3153
evening courses	170	161	259	302	300	300	291	280	269
remote training courses	748	795	1519	2165	2279	2348	2443	2532	2637
external training	-	0,1	51	120	137	142	147	155	156
in private institutions	70	136	471	860	1024	1079	1177	1253	1298
From them it was trained on									
full-time attendance courses	37	53	183	267	290	313	331	331	304
evening courses	5	14	44	50	61	71	81	72	74
remote training courses	22	61	243	539	663	684	753	835	904
external training	6	7	1	4	10	11	12	14	16
Number of students as to 10000 population	176	188	324	448	480	495	514	525	529
including in state and municipal institutions	171	179	292	388	408	419	431	437	438

DISTANCE EDUCATION IN RUSSIA

Russia is a geographically unusual country, its territorial extent and a lack of good transport communication between small settlements makes development of distant learning a pressing problem. The specificity of distant learning development in Russia during the last two decades is a correspondence between its phases and changings of the country's economic strategies and its government institutions. According to this, there may be defined the three phases of distance learning development, each lasting from 5 to 10 years.

The First Phase
The first phase, which lasted from 1995 to 2000, refers to the realization of the program "Creation and Development of the Distant Learning System in Russia". At this phase several universities began to teach not only in a traditional form, but also in a distant one as an experiment. Meanwhile, the majority of universities acted on their own and they were not worried about standardization of means for distant learning.

Representative offices of other countries' educational organizations, which educated distantly according to their own programs, began to appear. Considerable role in the development of distant learning system was played by the work of institute "Open Society" (by Soros Foundation). They started a development of open education and opened Internet-centers based on universities and other educational institutions. On the other hand, legislative and regulatory basis for the distant learning hadn't been worked out yet and the work has been held as an experiment.

The Second Phase
The second phase was supported by the Federal special-purpose program "Development of the Unified Informational and Educational Environment (2001-2005)". At this stage, a tendency to standardize means of distant learning appeared and a net of regional Internet-centers, which provided distant forms of education, was founded (Ovsyannikov, 2003). The stage was implemented by means of a specially created state institution "Research Institute of Informational Technologies and Telecommunications" governed by the Department of Education and Science of the Russian Federation. At the beginning of the stage the law about a distant learning regulation was passed. It made the 2002nd year be a beginning of an establishment of a distant learning as an educational form equal in rights to others. The methodology introduced in the law provided educational organizations with

an instrument of regulation of distant learning and gave them an opportunity to combine it with traditional forms of education (Halitova, 2004).

A valuable contribution to the development of distant learning at this phase was made by the Federation of Internet Education that was founded by funds of UCOS Company. Federation's projects assisted in the retraining of teachers in the field of application of Internet technologies.

The Third Stage
The third stage is taking place nowadays. It is supported by the priority national project "Education". At this stage much attention is paid to the development of distant education in institutions of high education.

The National Fund of Stuff Training was created and it carried out a number of projects to development of study materials for online education. Large publishers were involved in standardization of the materials presentation.

Developed materials joined the Unified Collection of Digital Educational Resources which has an open access and is currently a basis for regional centers for development of their own educational programs and courses for distant education. Let's look closer at the stages of the development of distance learning in Russia.

Phase 1:
An Experimental Phase of Creation of
The Distant Learning System in Russia (1995-2000)
"Conception of creation and development of distant learning in the Russian Federation" was accepted in 1995 (The concept, 1995). The document gives the following definition of the distant learning: "Distant learning is a package of educational services, provided for great masses of population in the country and abroad with a specialized informational and educational environment, based on means of exchanging of educational information at a distance".

Department of Education and Science organized a distance learning implementation experiment in several Moscow universities in 1997. The leading institutions participating in the experiment were (Andreev, 2003):

- Distance learning institute of Moscow State University of Economics, Statistics and Informatics (MESI), Moscow, http://www.mesi.ru (Tikhomirov, 1997)

- Moscow branch of the International Management institute LINK. (LINK is a strategic partner of the Open University of Great Britain on the territory of CIS), http://www.link.msk.ru.
- Modern University for the Humanities, Moscow, http://www.muh.ru.

It should be noted that that time the development of distance learning was connected with education in fields of management, finances, law sciences, linguistics and IT.

Meanwhile, some technical universities began to adopt technologies of distance learning too.

One of these universities was Moscow Institute of Electronics and Mathematics (MIEM) (http://www.miem.edu.ru retrieved 2010-01-05), which began to develop means of distance learning to support an electronics design.

Currently, the networks center of the university develops the NetSpice subsystem, that acts as a web interface for a system of circuit modeling Spice, developed in the Department of Electrical Engineering and Computer Sciences, University of California, Berkeley, and for a package Mathematica by Wolfram Research.

Some projects connected with the programs of native education abroad arose For example, Moscow State Industrial University (MSIU) (http://www.sde.ru retrieved 2010-01-05) provided for compatriots lived abroad and Russian citizens with programs of distance learning.

Taking into account the specificity of this centers' students (Russian-speaking population) and the absence of laws regulating relationships between Russia and the Baltic States concerning questions of higher education (particularly, mutual acceptance of certificates of degree), education was provided on behalf of International Institute Info-Ruthenia (http://www.institute-info.ru retrieved 2010-01-05), with MSIU as one of its co-founders.

University Ruthenia was established and acted within the Association of the assistance to International Science Academy, and so its diplomas were indexed in the all-European register according to UNESCO Charter and the Convention of recognition of diplomas and certificates of degree in the European States.

Figure 3.
An experimental phase of creation of the distance learning system in Russia (1995-2000)

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┌─────────────────────────────────────────┐
│  Ministry of Education                    │
│     ┌──────────────────────────────┐      │
│     │   Coordination Council        │      │
│     │                               │      │
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└─────────────────────────────────────────┘
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┌─────────────────────────────────────────┐
│  Temporary regulations for pilot          │
│  projects in distance education           │
└─────────────────────────────────────────┘
     │    │    │    │    │
     ▼    ▼    ▼    ▼    ▼
              ┌─────────────────────────┐
              │  Pilot projects in several
              │  universities            │
              └─────────────────────────┘
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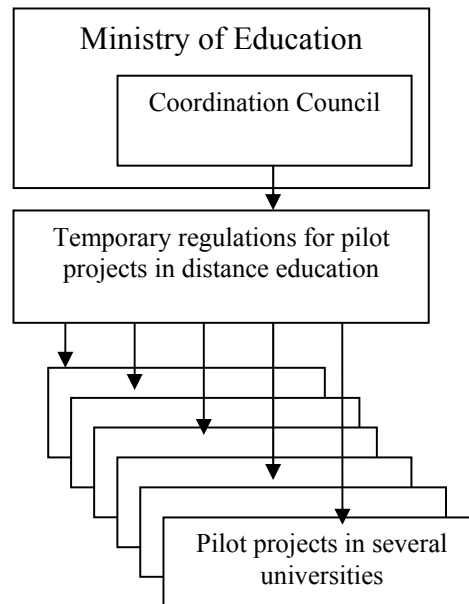
The Institute of Distant Learning on the basis of Peoples' Friendship University of Russia (PFUR) (http://ido.rudn.ru   retrieved 05.01.2010) was established in 1997. Now the institute teaches specialists in the fields of economics, law sciences, journalism and public and municipal management.

Regional institutes became an important part of distance learning in Russia. Thus a leading regional institute of higher education Udmurtia State University (UdSU) based its activity on the concept of distributed university (http://e-learning.udsu.ru   retrieved 05.01.2010).   An Internet-center was established in UdSU with the help of Institute "Open Society", which possessed satellite and ground communication channels, Internet classrooms and web-laboratory. Nowadays it provides education on the basis of learning management system Moodle.

It became clear that effective distance learning could be achieved by combination of resources of several universities, which was not a problem

for distance learning from technical point of view (Popov, 1999). Thus, consortiums and associations of education foundations appeared and started to teach distantly in collaboration. For example, the major role in the distance learning of Siberia plays Association of education foundations of Western Siberia "Siberian Open University" (http://ou.tsu.ru retrieved 05.01.2010). The association was established by major Siberian universities which by themselves are big independent centers of art and science in their regions: Novosibirsk State Technical University, Tomsk State University and Altai State University (Anisimova, 2005).

Within the association distance learning programs are implemented by the most well-known institutes of Siberia and Far East: Polzunov Altai State Technical University, Far East State University, Irkutsk State University, Kemerovo State University, Novosibirsk State University, Omsk State University, Tomsk State University, Tomsk Polytechnic State University, Tomsk State University of Management System and Radio Electronics, Yakut State University.

Within the association there were developed joint educational programs devoted to new areas both of science and technology (for example, "Efficient Computing on Clusters", "Geoinformation System (GIS) and Space Geological Monitoring of Natural Objects", "Nanostructured Materials on Metallic and Ceramic Base: Technology, Structure and Properties") and programs connected with professional development of the university workers in field of new educational technologies and effective using of distant learning means (for example, "Program of Workers' Education in Field of Open and Distant Learning", "Work Organization in a Network Distributive Structure of Lecturers and Research Officer Training", "Management of Innovative Processes in Modern University: Conversion to Competent and Oriented Education", "Bologna Process in Russian System of Higher Education", "Designing of Educational Space in Modern University").

Results of the experiment were summarized by Russian Department of Education and Science in 2002. In the final document "On the Results of the Experiment in the Field of Distance Learning and the Outlook of the Distant Learning technologies Development" (About results, 2002) it is said that there were established 588 educational centers in participating universities and more than 206 thousand students were taught and more than 13 thousand lecturers, tutors and teachers-technologists took part in organization of the educational process.

The experiment helped to reveal important issues which appeared at this stage of the creation of distance learning system. One of them is an insufficient development of the system of electronic and computer network communications; strong financial aid from the state was necessary to solve the problem;

Another problem appeared, because institutes, that provided distance courses, acted mostly on their own and used software products which were based on different standards. On the one hand, it considerably complicated an efficient informational exchange between universities. On the other hand, it brought about troubles of integration into the worldwide system of distance learning which is based on international standards. Also it was noticed that issues of legal support of distance learning implementation were worth special attention: there were no normative documents that could permit to use distant learning technologies beyond the experiment.

Phase 2:
Development of Distance Learning
And Its Obtaining f Legal Status (2001-2005)
This phase is characterized by the acceptance of the methodology of using distance learning technologies in institutions of higher, high and additional professional education in The Russian Federation (Technique, 2002). Some principles of the methodology:

> … *The primary distance learning technologies are: case technology, Internet technology, telecommunication technology. It's possible to combine primary technology types.*

Let us note one of the technologies called case technology, which has nothing in common with educational technology called *case method.* It can be interpreted in the following: "according to the case technology, educational and methodological materials are combined into a special set (case); the set is sent to a student for independent learning; communication with tutors is provided by regional educational centers that are established for this purpose. It is considered that motivated student is able to learn and master considerable amount of material on a wide variety of subjects if this education is supported by a substantial case".

This concept appeared on the earlier phases of distance learning system development when besides print materials students began to receive electronic ones: video cassettes, floppy and CD disks.

The name of the method sounds a lot like the name of the Case Method (method of specific situations) that is an educational technique which uses descriptions of real economic and social situations. Students should analyze some situation, understand the essence of the problems, suggest possible solutions and choose the best one".

This ambiguity is connected with using of different meanings of the word *case* (a situation or a large box or container in which things can be stored or moved).

Internet technology refers to the usage of the Internet, which was not so well-spread those years as it is spread now.

Telecommunication technology refers to other types of communication including video broadcast.

- *Educational programs are said to be as implemented with full usage of distant learning if not less than 70% of curriculum hours students learn through distant learning technologies. Besides traditional informational resources the following means of distant learning are used in educational process: specialized textbooks with multimedia supplements, electronic methodological complexes including electronic textbooks, tutorials, training computer programs, computer laboratories for practical work, set of control tests, educational films, audio and other materials which are intended for transmission through telecommunicational channels.*
- *Monitoring and intermediate certification of students is provided by institute either by traditional methods or by electronic means which can guarantee personal identification. Obligatory final assessment of graduating students is implemented by traditional methods. To organize distance learning it is reasonable to maintain students' results and to keep records in an electronic form according to conditions of Federal Law "On Digital Signature".*

Meanwhile, distant learning is considered not as independent education form, but as a way of organization of educational process (informational and telecommunicational educational technology).

There traditional educational forms are preserved: full-time and half full-time instruction, instruction by correspondence, external

Figure 4.
Development of distance learning
and its obtaining of legal status (2001-2005)
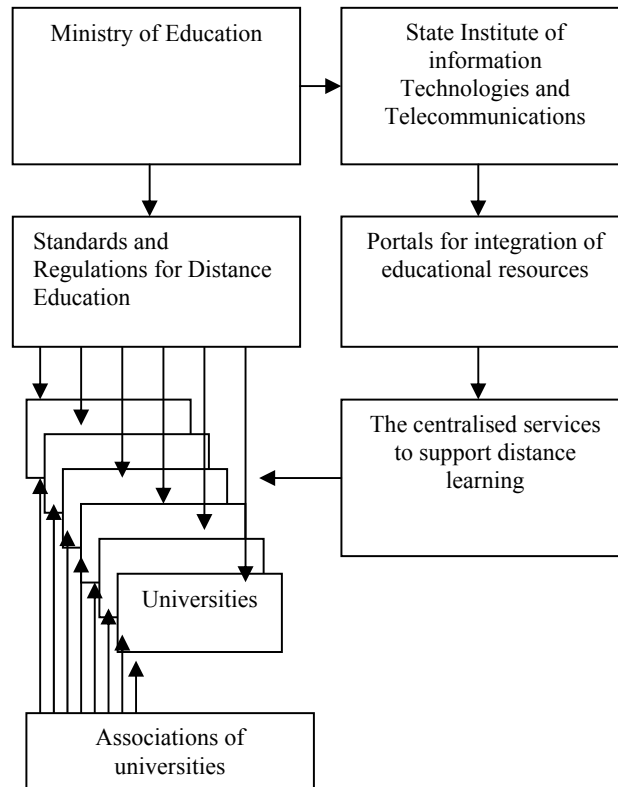
The great achievement of this stage was the establishment of state institution called "Research Institute of Informational Technologies and Telecommunications" (Informica) with the help of the Russian Federation's Department of Education and Science.

This institution became a leading one in development and maintenance of educational portals. A system of so-called "horizontal" and "vertical" portals was established; they started to concentrate open educational materials and became a mean of coordination of the development of informational and educational space.

At this stage, in 2000, it was established a non-commercial organization Federation of Internet Education (FIE).

The main aim of FIE was an assistance in developing of Internet education in our country.

Due to this organization, which was financed by UKOS, there was a mass retraining of teachers in the field of computer and Internet competence.

FIE implements a few important Russian projects:

- Generation.ru. Its aim was an overcoming of the fact that Russia is seriously behind the other world powers in the field of informatization of education. The five-year project included an establishment of Internet-educational centers in 50 Russian regions were high school teachers could learn how to use Internet technologies in educational process. The centers were established on the basis of regional leading educational institutions by cooperation of regional administrations and FIE. To educate teachers, the Internet-centers worked out original programs, that didn't have any analogues.
- Within the federation there worked a youth center with the aim to popularize Internet education among Russian young people, a set of Internet resources with educational subject (Teacher.ru, Parent.ru, Teenager.ru, etc), Several events were maintained, they were such conferences as "Informational Technologies in Education", Virtual Parental Meeting, contests "Teacher of the Year" and "Leader in Education" and so on.

Phase 3:
Development of Methodical Support for Distant Learning
and Organization of Distant Learning At Schools (From 2006 Till Now)
Current stage of distance learning development is being implemented within the priority national project "Education".

Great amount of attention is paid to distance learning development in institutions of high education. Management of projects on informatization of education is fulfilled by National Personnel Training Fund (NPTF).

One of the work directions is a providing of all Russian schools with an access to Internet. Implementation of the large program of connecting to the Internet of all general educational institutions in Russia started in September 2006.

About 300 Russian schools have been connected to Internet every day. As a result a broadband access to the Internet was provided to every general educational institution of the country within the priority national project "Education" for 2 years.
The payment for the traffic was made by the state at the first years. Another important problem of the national project "Education" was to develop educational resources and to provide pupils and teachers of all Russian territory with modern informational educational resources.

There were implemented some projects of development of digital educational resources (DER), which supplemented basic textbooks of all subject.

Besides, during 2005-2008 years, there were developed Innovative Educational and Methodological Complexes (IEMC) on every subject of school curriculum.

Permissions to its development were given to authors collectives offered the most original and innovative ideas. Meanwhile, Informational Resources of Difficult Structures (IRDS) were established in different areas.

All worked out resources are freely available in the Unified Collection of Digital Educational Resources (http://school-collection.edu.ru retrieved retrieved 05.01.2010). Nowadays more than 100 thousands educational resources are developed and published in the Internet; they provide teachers and pupils with big enough number of new educational materials.

The number of children, who study in up-to-date well-appointed classrooms and constantly use computers and Internet at schools, increased.

Before the project "Education" there was one computer for more than 40 pupils, now this correlation is about 1 to 20, that is almost an average European level and in some regions this number is near to 10.

Less than 10% of schools used to have access to Internet and often connection was gained through modem; today all schools have access to Internet through dedicated channels.

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National Fund of Professional Education	Ministry of Education and Science	State Institute of Information Technologies and Telecommunications
Financing on a competitive basis	Strategy planning	Coordination and integration

Distance learning realization

Contents development

Universities

Private companies

State Centers for Distance Education

Contractual relations
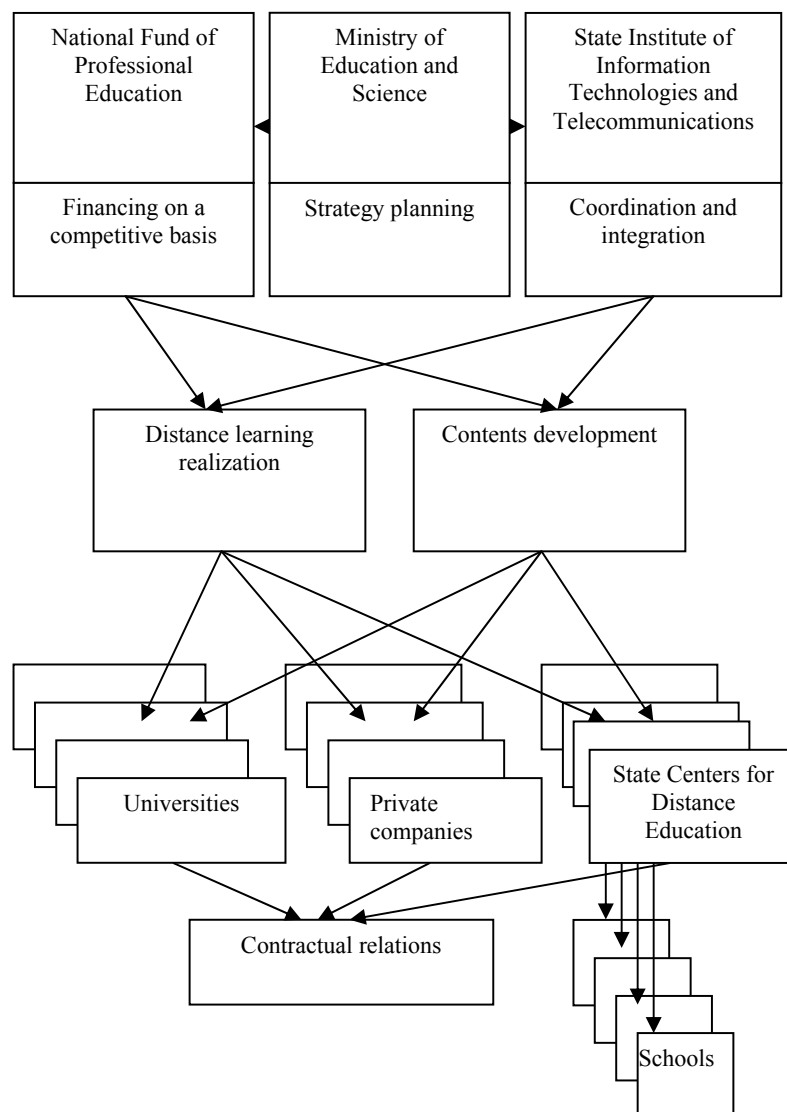
Schools

All schools have gained unlimited access to informational educational resources during the period of project implementation (2006-2008); it gave

opportunities to considerably increase the quality of educational services and availability of quality high education in all country regions due to familiarization of teachers and pupils to modern education technologies. Two years after schools were connected to the Internet, financing was passed to subjects of the Russian Federation.

It caused a problem of providing schools with traffic and the situation with the access of schools to the Internet has become worse in some regions for the last two years (Inquiries, 2009).

Features of The Modern Phase of
Distance Learning Development in Russia

Distance Learning in Universities
Nowadays new normative documents have come into effect. They create legal platform for the usage of distance technologies in educational process and transfer the most part of responsibility for quality of specialists' training to a leading university.

Let us consider features of the modern phase of distance learning development in universities on the example of the distance learning organization of the most prestigious Russian university – Moscow State University (MSU).

The concept of distance learning development of this university defines basic directions in the following way:

- diversification of educational technologies in MSU in compliance with modern world tendencies;
- maximal satisfaction of high demand for quality educational service of MSU (training of university entrants, comprehensive programs, higher professional education, advanced training, professional retraining);
- Participation of MSU in united educational space of world community, including exchange and usage of full range of information, communication with other participants of world educational system;
- overcoming of territorial barriers for education in MSU and providing all social classes with availability of getting education;

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- expansion of MSU's main scopes of activities.
- Development of distance learning in the university is considered to be a self-financing activity. Management of the university distance learning is implemented by the Coordinating Council of MSU on Distance Learning Technologies. Control is realized by a committee of quality of distance learning service under the Coordinating Council of Distance Learning Technologies. The usage of licensed software is under a special control in distance learning system of MSU. Open technologies and means are considered to be preferable for a distance learning.

Private Firms in Distance Learning

Private firms designing distance learning courses, actively develop simultaneously with distant learning development in universities. The most effective way for these firms is not to turn into separate educational institution, but to make agreements with universities to fulfill particular work, for example, further training for faculties of universities or teaching separate courses, which are connected with innovative activity of universities, such as courses on information technologies.

Let us consider particular features of cooperation between private firms, which specialize in distance courses development, and universities by example of work by Internet University of Informational Technologies (http://www.intuit.ru/ retrieved 2010-01-05).

This private firm works in collaboration with a few classical Russian universities such as the School of Information Systems and Computer Technologies of New Russian University (http://www.rosnou.ru/it retrieved 2010-01-05), the School of Business Informatics of State University "Higher School of Economics" (http://hsbi.hse.ru retrieved 2010-01-05), Novosibirsk State University (http://www.nsu.ru retrieved 2010-01-05), etc.

Main objectives of the company are:

- Financing of development of educational courses on informational-communication technologies (ICT);
- Coordination of educational and methodological activities of computer industry companies on creation of courses on ICT;
- providing university faculties and their libraries with textbooks and methodological materials on ICT courses;

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- assistance for public authorities in development of educational programs in the field of modern informational technologies.

Internet University exists at the expense of founders; financial support is rendered by a number of Russian and foreign companies and private persons. All courses of Internet University are open.

Organizers point to the following reasons for this decision (Shkred, 2005):

- at first, they claim that sooner or later every piece of knowledge, even the most secret, will be known and accessible in the Internet, therefore there is no sense to hide it;
- secondly, regardless of the uniqueness of an educational course there are a lot of other alternative courses organized by "competitors" and the winner will be the one who publish its course earlier.

However, if a student needs a diploma, he or she has to enter a paid educational program, implemented together with universities that have State accreditation. Companies owners do not allow putting their courses on other websites, but do not object if they are used in educational process of other universities.

Courses are prepared by professors and lectures from Russian and foreign universities, members of research institutes, employees of state organizations and business representatives. Directors of Internet University of Informational Technologies rely on authors absolutely and do not interfere in the process of courses creation.

Russian systems supporting distance education
The peak of development of new Russian systems for distance learning support was about 10 years ago and nowadays only a few systems remain along with commercial distance learning systems, well-known in other countries, and open systems (such as Moodle). There are three most well-spread systems:

- PROMETEUS (http://www.prometeus.ru/ retrieved 05.01.2010)
- E-Learning Server 3000 (http://www.learnware.ru/ retrieved 05.01.2010)
- OROCS (http://mocnit.miet.ru/ retrieved 05.01.2010)

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The first one was spread not only in Russia, but in the states of the former USSR; the second one which began to develop later gained great spread in Russia.

Each of these systems is used in 300-400 universities and other educational institutions. The last system has more limited spread.

All these systems passed the following development phases:

- at first, there were created systems to support distance management of students' work, creation of distance courses and education control;
- during the development of a system, new modules were added. For example, a system of educational content management, a multimedia server for network transmission of streaming audio/video in live broadcast or by a request, informational portal of organization, module of human resources management, etc.

Appearing of WEB 2.0 technologies, which gave new opportunities for communication between lecturers and students, lead to parallel coexistence of large distance learning systems, which are inertial in their development, and open systems for comfortable communication and collaboration that develop actively last years. For example, collaborative work of lecturers and students with educational materials by means of Google open services was more convenient than by analogous means that were presented by spread distance learning systems.

There is still a niche for distance learning systems, which is connected with organization of auxiliary administrative work (such as accounting of courses taken by students, financial data, keeping a courses library and so on). This tendency will probably increase even more soon. Meanwhile, development of general standards for materials and systems of distance learning, such as SCORM, gives opportunities for development of subject modules that will meet requirements of lecturers for subject learning environment and at the same time will cooperate with distance learning systems of general purpose.Let's consider some examples of such subject-oriented products that are created and developed in Russia.

Subject-Oriented Environments as A Basis of Electronic Education
Let us consider as an example the work of two large Russian companies, developers of educational software, that work actively in education field.

1C company: 1C company (http://www.1c.ru/ retrieved 2010-01-05) got fame in Russia because of creation of software for support of accounting activity and administration for small enterprises. The company possesses a wide net of dealers and small enterprises that create their products on the basis of 1C platform.

This year, the fund of small business support in the field of research and technology, supported small enterprises, which develop software on the basis of 1C platform. About 15 years ago, a company created a department of educational software development.

During the last few years, it released a line of its own software products for support of teaching of almost all school subjects, and also integrated programs of small firms, which did not have their own dealer networks, into the system. 1C company developed its own platform "1C Education" for organization of educational process, which makes possible to integrate and administrate different educational courses (Baljan, 2007).

Not long ago new product of this company called "Mathematical constructor 1C" was released; it cooperates with every distance learning system, which is standardized according to SCORM 2004 (Dubrovsky, 2007). A significant feature of the product is a combination of rich dynamic geometry opportunities for solving of geometrical problems by means of tools implemented in the product, and opportunity to transfer solutions to distance learning systems.

Thus, the poorness of means of general purpose knowledge control, which are included into distance learning systems, such as tests with multiple choices, can be compensated by including of problem-applets that let students' present solutions in natural for geometry form and at the same time record the correctness of the solution in control system of chosen distance learning system automatically.

The first results of usage of "Mathematical constructer 1C" were obtained in St. Petersburg Center of Informational Technologies KIO, which develops system of distance scientific contests support: geometrical problems are included as new type to a set of problem types that are supported by system.

Physicon Company: Another large company that works in Russian market of subject-oriented environments is Physicon Company (Competentum) (http://www.physicon.ru/ retrieved 2010-01-05). It was established in 1993

on basis of well-known Physics-technical University that was founded by Kapitza.

From the beginning of its existence the company developed only educational computer programs. The course "Physics in Pictures" was released on CDs in 1994 and it was the first multimedia educational course in Russia; its revised version is still used in Russia and the USA.

That time the company formed the development concepts of Competentum educational programs, and they still distinguish the programs from analogues; the concept means integration of a huge amount of interactive computer experiments and methodological materials into courses.

Joint work of Physicon Company and OpenTeach Software Inc. began in the USA in 1995. Since then active developments are made for the largest American publishers and suppliers of e-Learning solutions: Cengage NOW, Pearson Education and so on.

After that new educational computer courses were developed by the company; such courses as "Open Physics", "Open Mathematics", "Open Chemistry", "Open Astronomy" and "Open Biology" were awarded by many prizes in national and international competitions and exhibitions. These products are used in more than 40 thousand Russian schools. The company founded an Internet project, server College.ru, for distance learning support that is awarded by many prizes and is translated in 8 languages and used by companies and educational institutions in 16 countries (Soboleva, 2002).

In 2004, the technological platform Competentum was developed for a construction of large distributed informational systems. And in 2006 international group Competentum was founded; it was an integration of Physicon Company, OpenTeach Software Inc. and Competentum Service and became a large supplier of e-Learning solutions for business and education both in Russia, the USA and Europe.

Competentum provides development of education management systems on the basis of portal technologies of Microsoft SharePoint 2007 using their advanced functionality and integration possibilities. The unique library of educational electronic courses by Competentum Group includes more than 100 thousand educational objects.

Distance Projects For Schoolchildren

MCCME Library
The easiest and at the same time the most important project is a creation of electronic libraries with open access to classical textbooks and popular science literature. An example of such project is a creation of library of mathematical books on the website of Moscow Center for Continuous Mathematical Education (www.mccme.ru retrieved 2010-01-05).

There is a rich library of popular publications in mathematics from the previous century that consists of books written for children by famous scientists; these books popularized science, and every teacher and pupil interested in subject wished to possess them. For example, all books by famous popularize of science Perelman, all issues of the "Quantum" magazine, the whole collection of books published by editors of this magazine and so on.

Relying on the content of the library, it became possible to work with pupils distantly by making them read some materials connected with a course.

Mathematical Sketches
Besides the usage of educational materials in traditional printed form transferred into digital one, other forms of information representation may be used. The most successful group that tried that approach was the group of developers of distance program complex called "Mathematical sketches" (www.etudes.ru retrieved 2010-01-05).

They develop movies based on 3D technology that show mathematics and its applications in interesting and fascinating way. The complex contains sketches which are entertaining popular science stories about modern mathematical problems or cartoons that present well-known plots in a new way. Ideas of the plots are understandable for pupils, but some of problems offered in these films are not yet solved by scientists.

Game-competition "Construct, Research, Optimize"
Usage of digital books and computer films has one shortcoming – lack of interactivity. This shortcoming was eliminated by authors of game-competition "Construct, Research, Optimize" on experimental acquaintance with scientific achievements in mathematics and informatics (www.kio.spb.ru/kio retrieved 05.01.2010). Participants are offered with scientific laboratories where difficult or problems without general solutions

are presented in the form of a game. Participants have a week to carry out experiments trying to find the most optimal solution according to criteria, given in the task. The best solutions are saved automatically and passed to the competition website where they are compared with results of other participants. Due to the competition pupils were acquainted with many important ideas of informatics and such a new branch of science as experimental mathematics (Pozdnyakov, 2008).

Distance Scientific Academic Competitions
Nowadays the question of knowledge assessment after high school education and the system of entrance into universities is being solved in Russia. The Unified National Exam was introduced this year, it is used both for the estimation of school knowledge and as an opportunity to enter university without additional exams (apart from a few universities that preserved right to set exams and usually only one).

Meanwhile, this system is widely criticized by pedagogical society that insists on usage of different indicators for estimation of school education and on changing of the system of entering into universities.

Academic competitions held by regional universities are suggested to be one of such mechanisms; these universities usually co-operate within one city or region and are certified at the Federal level by special committee.Russia has long and successful experience of academic competitions and out-of-school activities therefore support and consolidation of these traditions improved educational system, which has been put to repeated and groundless reforming during last years.

One successful example of such academic competitions is distance competition held by Saint Petersburg State University of Informational Technologies, Mechanics and Optics (SPbSUITMO, http://olymp.ifmo.ru/ retrieved 05.01.2010world competition in programming called ACM and therefore possesses both good resource bases for holding distance learning in informatics and strong stuff potential for such kind of activity.

For mathematical and physical academic competitions SPbSUITMO invited specialist in the field of distance education organization from other St. Petersburg universities: the faculty of Physics and the faculty of Mathematics and Mechanics of St. Petersburg State University (SPbSU), St. Petersburg State Electro technical University (SPSEU) and Russian State Pedagogical University (RSPU).

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For example, physics competition use a system for carrying out virtual physical experiments that was created by the Physics faculty of SPbSU, and authors of the article participate in creation of a system for distance competitions in mathematics.

Heuristic Academic Competitions by Eidos Center
A big problem of distance learning organization is to motivate teachers to use various Internet technologies that became standard but are not accepted by teachers as a tool for everyday usage (Hutorskoj, 2006).

The problem of overcoming a fear of new ways of communication is successfully solved in the Center of distance education called Eidos (http://www.eidos.ru retrieved 05.01.2010), which holds since 1998 distance academic competitions, courses, conference, mobile seminars for pupils, lecturers and other specialists, and also holds annual all-Russian competition "best distance teacher of a year".

Among their partners there are such leading research and educational organizations as Russian Academy of Education (RAE), Institute of Content and Methods of Education under RAE, institutions of Department of Education and Science in the Russian Federation, Internet organizations, gymnasium and lyceums.

During the existence of the Center its website has been visited by more than 3 million people, about 500 distance events were carried out with more than 200 thousand participants: teachers, pupils, students, lecturers, methodologists and educational administrators.

Letopisi.ru
Besides projects that were initiated for direct support of education, there are projects, which support out-of-school activities for pupils and because of this help teachers to organize pedagogical work. One of these projects is Letopisi.ru (www.letopisi.ru retrieved 2010-01-05).

This Internet project was created when WEB 2.0 technologies appeared. The aim of the project is to give pupils, students and lecturers an opportunity to "play Wikipedia" creating together collective hypertext.

Co-authors of articles assembled and presented historical events of towns, settlements and villages of Russia during 2006-2007 and the following years. Participating in the project according to project authors' give such skills as:

- creativity, because of creation of own unique articles, notes and histories that can be told only by certain participant;
- tolerance, because creation of collective hypertext demands kindness and mutual understanding among joint authors;
- working with technologies: WikiWiki, national classifiers, live journal, mobile devices;
- development of ecological thinking, because Letopisi.ru is created by efforts of many participants and can be successfully used as a model for examination of regularity of growth and development of difficult decentralized systems.
- There have been created about 40 thousand articles at the moment of this article was written.

TV Channel BIBIGON

Development of stream video made it possible to combine tv educational technologies with Internet technologies. Educational channel BIBIGON has been working in Russia for several years; it is named after a character of stories for children by Chukovsky. This channel records lessons about important events and persons of Russian history, discussions of literature compositions and their authors, sketches about natural phenomena. All lessons are prepared by scientists with skills in narration. The channel encourages children in creativity and creation of handicrafts from improvised materials, going on for sport, instills good manners, carries out competitions and quizzes.

All these materials are on open access in the project's website (http://www.bibigon.ru/ retrieved 2010-01-05). Thus, active teachers and kindergartner teachers can use recorded TV programs in their work.

CONCLUSION

Performed analysis shows quick development of conditions for implementation of distance learning in Russia. Many universities use technologies of blended education successfully by combining emerging opportunities of electronic resources usage with traditional education methods. Availability of personal computers and Internet access in schools increases rapidly. At the same time problems of adaptation of educational system to the new conditions become obvious.

Teachers do not have enough time to adapt rapidly to new opportunities, business occurrence in creation of informational technologies leads to including of outdated pedagogical technologies into distance learning process, which are the easiest for formalization in these systems.

In next years, methodologists working in the field of e-learning will have to find new ways of usage of different informational resources in the structure of distance learning, to initiate intellectual development of students as much as possible, to support students' initiative and an individuality of pedagogical approach. Specialists in the field of e-learning software development will have to develop means of subject representation (modeling) in which unrestricted activity of student will be of an educational nature itself and teacher will be able to implement pedagogical strategies without artificial restrictions by poor capabilities of available environments.

Acknowledgement

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CHAPTER-31
eLEARNING IN SAUDI ARABIA

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ABSTRACT

Saudi Arabia as one of the largest Islamic countries in the world with the largest reserves of petroleum, has radically improved its educational system as a result of comprehensive development programs. General and Higher education is experiencing capacity issues which lead to the need to adopt distance education as an instructional strategy. The following chapter describes the country, its tertiary education system and current developments in distance education and eLearning.

COUNTRY

The Kingdom of Saudi Arabia covers almost four-fifths of the Arabian Peninsula or 2,217,949 km². At just over one-fifth of the size of the United States it is the world's 14th largest state and with a population of more than 28 million people (Source: Population Reference Bureau (2008) - www.prb.org), it is one of the largest Islamic countries in the world. The Kingdom is sometimes referred to as 'The Land of the Two Holy Mosques' in reference to Mecca and Medinah, the two holiest places in Islam. The capital, Riyadh, has a population of around 6 million.

There are plans for two new cities on the outskirts of the capital to cope with the expected rise in the Kingdom's population over the next 50 years. The other main population centers are mainly along the eastern and western coasts. Saudi Arabia is divided into thirteen administrative divisions. The official language of Saudi Arabic is Arabic, the Holy Qur'an is the constitution, and governance is according to Islamic law (MOE, 2001). Much of the nation's landmass comprises desert and semi-arid regions which are largely uninhabited. The southwestern region, with mountains as high as 3,000m, has the country's greenest and freshest climate. The eastern part of the country is primarily rocky or sandy lowland. The southern desert region, Rub' al Khali or Empty Quarter contains almost no life. Less than 2% of the land is arable.

Saudi Arabia has world's largest reserves of petroleum -26% of the proven total- and oil is the country's major source of income, accounting for more than 90% of exports and nearly 75% of the government revenues that facilitate a welfare state. Other natural resources' income comes from natural gas, iron ore, gold and copper (UNDP, 2008). In 2008, agriculture accounted for 3.1% of the GDP, industry 61.6%, and services 35.4% (CIA, 2009). In that same year, the GDP growth was 6% and GDP per capita $21,300. Despite the 63% drop in oil prices, and to minimize the impact of the recession on the country's economy, the government is continuing to spend heavily on infrastructure and development projects, drawing funding from its reserves and ongoing oil receipts.

Traditionally, the government has been the major employer but the bureaucracy is being overhauled and state jobs are likely to become fewer as the private sector increasingly becomes the main driver of economic activity.

Figure 1.
A Map of Saudi Arabia

Saudi culture mainly revolves around the religion of Islam. The annual, two-week National Festival of Heritage and Culture, which is held in Al-Janadriyah, a village 45 km north of Riyadh is considered one of the

most important cultural festivals in the Arab world being an event where poetry, intellect, culture, art, theater, heritage and history meet (MOE, Saudi Culture, 2005).

EDUCATION SYSTEM

In recent years, Saudi living standards have radically improved as a result of comprehensive development programs. Education is at the forefront of the Saudi Government's priorities. Saudi Arabia's education is going through an important phase in its history as a result of the reforms introduced by Custodian of the Two Holy Mosques, King Abdullah, to improve the country's educational standards and match its position in the comity of nations. It is the government's aim to 'strengthen Saudi Arabia's position by building brains and investing in humans' to ensure that its citizens become more qualified and skilful to match the religious, economic and social needs of the country and to eliminate adult illiteracy. A measure of the government's commitment is the allocation of over 27% of the nation's annual budget for education and vocational training (MOE, About Saudi Arabia, Ministry of Education, 2001).

The Saudi educational system provides free education from pre-school until university for all citizens; it also supplies students with free books and health services. 93% of all children complete a full course of primary education and 97% of youth and 85% of the adult population are literate (UNESCO, 2007). In most educational settings, the intermixing of genders is prohibited.

The highest authority supervising education in Saudi Arabia is the Supreme Committee for Educational Policy. At the ministerial level, education is primarily the responsibility of the Ministry of Education (MoE), Ministry of Higher Education (MoHE) and General Organization for Technical Education and Vocational Training (GOTEVOT). Other authorities such as the Ministry of Defense and Aviation, Presidency of the National Guard, and Ministry of the Interior also provide kindergarten, elementary, intermediate, secondary and adult education, adhering to the curricula formulated by the MoE. The MoE's General Directorate of Private Education is responsible of the supervision and planning of private education departments in all educational directorates and the private universities and vocational schools fall under the jurisdictions of the MoHE and GOTEVOT.

Policies for private education in Saudi Arabia stipulate that licenses may only be issued to Saudi Arabian citizens, and schools must comply with Islamic

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requirements (MOE, General Management of Private Education, 2006). There are around 31,798 public education schools with around half of a million teachers in the Kingdom (MOE, Projected Summary Statistics for the year 1428/1429H, 2005). Schooling consists of six years of primary schooling and three years each of intermediate and high school education.

The Ministry of Education (MoE) sets the standards both for the country's public and private schools. Government public schools follow the MoE curriculum. The private schools follow the MoE curriculum but also provide some additional courses. International schools use their own curricula. The government pays close attention to girls' education and the number of girls' schools has increased faster than boys' schools.

Recently there has been a new breed of government public schools - the (Tatweer) Model Schools. These teach according to a new MoE curriculum. The King Abdullah Bin Abdul Aziz Project for Developing Public Education or Tatweer (http://www.tatweer.edu.sa) was launched in 2007 with a budget of SR11.8 billion (US$3.1 billion).

Its aim is to improve the overall quality of education and produce generations of Saudis who will contribute to the development of the nation and society. Its objectives include (AlShemary, 2007):

- The development of educational curricula to comply with modern scientific and technical developments and meet the value-based, knowledge, professional, psychological, physical, and mental and lifestyle needs of male and female students.
- Re-qualification of teachers and preparing them to carry out their educational duties.
- Improving the educational environment and preparing to utilize ICT for acquiring information and training, strengthening personal and creative capabilities, developing skills and hobbies, satisfying psychological needs of students, and strengthening ideas as well as national and social relations through extra-curricular activities of various kinds.

In the Tatweer schools, the aim is to help the students analyze, think, and come up with answers while the teachers' role is to monitor the classes, allocate roles among the learners, and provide them with library or Web resources with which they can conduct their own research. The Kingdom's higher education system is shown in Figure 2.

The higher education institutions can be divided into two groups, those awarding university degrees, such as the 21 government universities, 12 private universities, Institute of Diplomatic Studies, Naif Arab Academy for Security Sciences and King Fahad Security College, and those awarding non-university degrees, such as Technical Vocational Colleges, Institute for Public Administration and Institute of Banking.

Figure 2.
The Saudi Arabian Higher Education System

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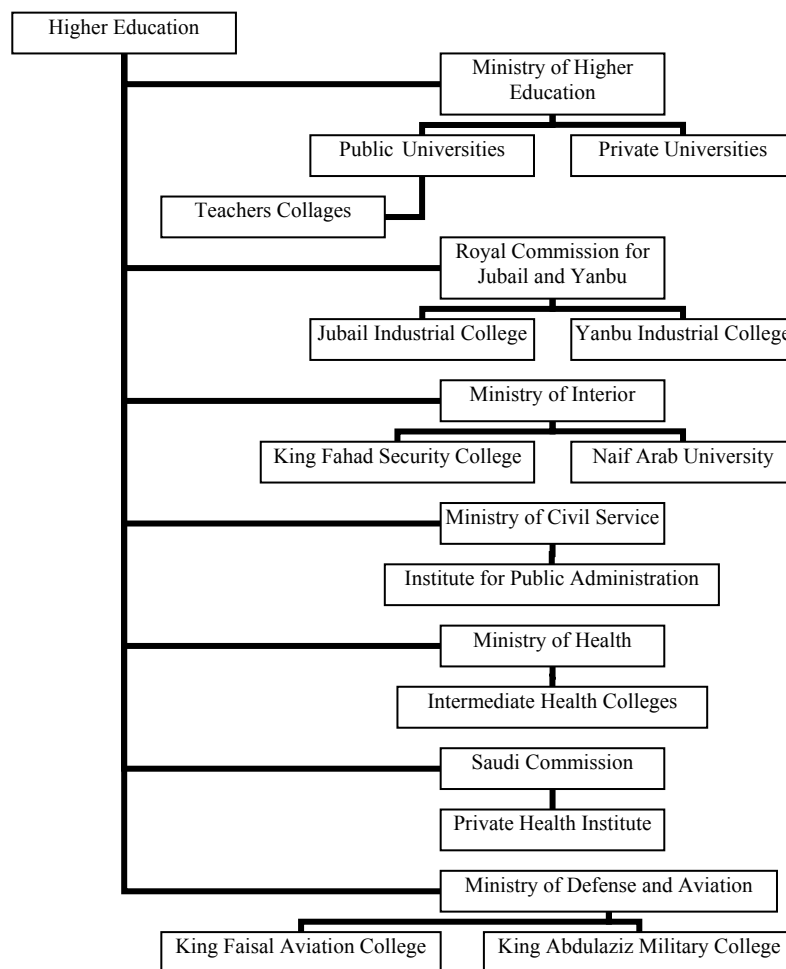
The Ministry of Higher Education (MoHE) funds the Kingdom's universities and colleges, provides the necessary technical and administrative support, and offers scholarships and financial support for Saudi students studying overseas (SACM, 2008).The establishment of King Saud University in 1957 marked the starting point of the Kingdom's modern higher education system. Today, there are more than 40 public and private universities offering certificate/diploma, associate degree, bachelors', masters' and PhD programs. According to the World Bank, 70% of their students are studying in the humanities and social sciences. Amongst recent developments is the establishment of the King Abdullah University of Science and Technology (KAUST) at Thuwal, 80 km north of Jeddah. This is conceived as a centre of excellence in the sciences, specializing in such fields as micro-technology, nano-technology, water conservation, biotechnology and IT.

In line with the government's efforts to provide better higher education opportunities and facilities for females, the 2009 budget included appropriations for the construction of a new female university campus (Princess Norah University) in Riyadh and the Medical City for King Saud University.

The higher education system also comprises private colleges, community colleges affiliated to universities, and girls' colleges. In 2009 the gross enrollment rate for higher education was 85.6%, for females, 45%, and for males, 55% (N/A, 2009). As a consequence of the growing population rate, more than 50% of the population being categorized as 'young', and rising labor market expectations, the government has recently increased funding for overseas study and announced that it will authorize foreign providers to set up campuses in the Kingdom.

A significant proportion of Saudi students are study abroad. About 50% of these go to study in the US, UK and Canada, but there are now plans to send more students to Asian countries including China, India, Singapore, Malaysia, South Korea and Japan. The Saudi government also collaborates with international organizations such as the British Council and UNESCO. The British Council, for instance, has established centres in Riyadh, Jeddah and Dammam/ Al-Khobar to guide and help Saudi students studying for UK qualifications, wishing to develop their English skills, etc (BC, 2009).

UNESCO, on the other hand, has established a UNESCO chair to train teachers in the health field at the Sebai Institute for Development. It has also accepted assistance from the United Nations whose international experts and consultants have helped to develop technical education and vocational training in Riyadh, Jeddah, and Dammam, and from the United Nation Development Programme (UNDP) which has provided technical assistance in such fields as education, health, industry and agriculture training (UNESCO, 2007) (UNDP, UNDP in Saudi Arabia, 2009).

DISTANCE EDUCATION

Saudi Arabia is experiencing higher education capacity issues and there is need to adopt distance education as an instructional strategy. Teaching and learning by printed; electronic or broadcast means for students who are not physically 'on site' has a short history in the Kingdom. Bachelor degree distance education programs have only been on offer through the traditional universities for about a decade and policies for single-mode, distance and virtual tertiary institutions are still under development for approval by MoHE. Some public universities such as King AbdulAziz University (KAU) and Imam Mohammad Bin Saud Islamic University are dual-mode while single-mode distance education is offered by the Arab Open University. Distance education is primarily applied where gender segregation is required in the various levels of public and higher education. Male instructors are only authorized to teach female students through distance learning technologies such as closed-circuit television, one-way video and two-way audio and broadcast.

Three examples exemplify the development of distance education in Saudi Arabia. The first is the establishment of the Deanship and Faculty of Distance Learning at King AbdulAziz University in Jeddah (http://elearning.kau.edu.sa/), designed to provide distance learning in the western region of the country. Its first academic year of operation was 2007-2008 and its programs are offered by the Faculty of Arts and Humanities and Faculty of Economics and Administration. These programs involve blended learning, the Virtual Class Room System (CENTRA) which provides lectures over the Internet and the E-Learning Management Electronic System (EMES) which facilitates interaction between students and faculty. The Deanship is also responsible for training and certificating faculty members and individuals outside the university in distance education as well as students using the system. KAU is also the permanent headquarters of the Saudi Distance Learning Society (http://ssdl.kau.edu.sa)

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The second example is Al-Imam Muhammad ibn Saud Islamic University. The University is permitted to offer four years of distance courses leading to Bachelor's level degrees. Admission is open for all Saudi and non-Saudi students in all majors, lectures are transmitted live via the internet on a daily basis and they are recorded and uploaded onto the distance learning website for students to watch. Students/professor communication is carried out via the internet using emails, forums, and virtual classrooms. In year 2008, more than 6000 students were admitted into the university and more than 15,000 are currently enrolled in the program (Imam, 2009).

The third example is distance education in the Girls' Colleges, which were previously operating under the umbrella of General Presidency for Girls Education (subsidiary sector of MOE) until their recent transformation under Princess Noura University supervision. The Girls' Colleges used VSAT broadcasting technology to serve more than 300 Master students in 36 colleges (Al-Kethery, 2006).

The broadcasting centre was in the capital city Riyadh and lectures were broadcasted to Girls' Colleges all around the Kingdom. The project consisted of two parts: the first part started in the first semester of year 2006 with the broadcasting of cultural, religious and economic public lectures; the second part was concerned with the development of electronic curriculums and hosting them in the General Presidency for Girls Education website.

Given this ambitious project for improving higher education opportunities and facilities for female students, yet, no progress of the project have been reported since its launch.

Like most Arab countries, Saudi Arabia has yet to authorize alternative providers such as private institutions or virtual universities. However, the private but non-profit (http://www.arabou.org.sa/en/index.php) Arab Open University which was founded in 2002 in Kuwait, Jordan, and Lebanon and subsequently opened branches in Saudi Arabia, Bahrain, and Egypt, has been accredited by the MoHE and National Commission for Academic Accreditation and Assessment (NCAAA).

The AOU is sponsored by the Arab Gulf Program for United Nations Development Organizations and is affiliated with the UK Open University. Its fully accredited regional centers in Saudi Arabia are in Jeddah, Ahsa, Dammam, Hail, and Medina.

It has three faculties: Business Studies; Language Studies (English language); and Information Technology & Computing. Students learn via the Moodle-based learning management system, interactive multimedia lectures, face-to-face lectures and practical sessions and texts.

The lectures are also made available in the form of DVDs, streaming video and different video formats for portable devices such as mobile phones and iPods. Computing facilities and wireless Internet access are available in all of the regional centres which are equipped with separate labs for male and female students. Most of the classrooms are also equipped with instructors' PCs, multimedia kits and video-conferencing equipment for teaching and intra-branch meetings and male-female closed circuit TV transmission. There are currently plans to equip students with state-of-the-art laptops. The AOU subscribes to a number of world-class digital libraries and these online resources are also accessible to the students through the LMS.

AOU enrollees must have successfully completed their secondary education, be proficient in English and able to afford the relatively high fees. Collaboration, partnership and licensing agreements between the AOU and UK Open University allow AOU to adopt and adapt UKOU learning materials for its own uses, be accredited by UKOU Validation Services, and award its own degrees.

However, AOU degrees are not universally recognized throughout the region, even in Lebanon, despite the university having one of its branches there (Abouchedid & Eid, 2004) and having established quality assurance units in all of its branches. Another interesting development has been the launch of the Knowledge International University (http://www.kiu.com.sa), the first virtual university in Saudi Arabia.

KIU is a non-profit, Islamic 'virtual university' offering bachelor-level degrees programs from the College of Sharee'ah and Qur'anic studies and the College of Islamic Studies for non-Arabic Speakers.

KIU has gathered an international array of leading scholars of high repute to supervise and deliver academically sound curricula in the various traditional disciplines of learning. Entrants to KIU must have either hold high school certificates or pass an admissions exam.

They study through a mix of pdf format study materials, audio and video recorded lectures and live lectures.

Each subject consists of 25 live and recorded lectures and students must 'attend' by listening to at least 15 of the 20 recorded lectures and being physically present at least four of the five live lectures.

In 2008, KIU had students in Saudi Arabia, Egypt, Jordan and Morocco. KIU is seeking to expand its range of courses. It was also seeking accreditation from the MoHE, a process which had been delayed by the Ministry's finalizing the rules and regulations governing e-learning and accreditation from other Arabic and international institutions.

Online distance education provided by international universities is not yet accredited by the MoHE.

This is because the MoHE currently stipulates that in order to approve a degree from any international university, the students must present evidence that their time is dedicated to studying on a full-time basis while residing in the country where the degree was earned. Thus, not surprisingly, unaccredited online universities play a much smaller role than organizations-funded universities.

However, some Saudi students do enrol in courses offered by University of Phoenix Online, the largest private, accredited university in the US, and premier educational provider for working professionals throughout the world.

Given the increasing population rates and expansion of the main cities, distance education would appear to be an obvious means of widening access and offering quality and flexibility in programs of choice. However, there are some constraining factors.

Distance education is often looked upon by faculty members as less scholarly, less rewarding and offering fewer career advantages. There is still a lack of funding and insufficient ICT infrastructure.

The students may be resistance to change since most of them are comfortable with traditional classroom education and lack the motivation to learn by them.

However, it is to be expected that these constraints will diminish over time as more students experience the advantages of distance education.

TECHNOLOGY

Saudi Arabia is the largest ICT market in the Middle East. According to SAGIA (www.sagia.gov.sa/english), the Saudi telecommunications and information technology industries represent over 55% and 51% of the total Middle East markets [Source: SAGIA Website]. As a result, the government has paid special attention to ICT, both in its periodically updated five-year development plans and long-term national comprehensive development plans. The national policy for science and technology was a result of such plans. The national policy adopted ten general objectives, ten strategic foundations (basic elements) and ninety directives or policies related to them. The tenth strategic foundation dealt with information and its technologies and stressed the importance of providing scientific and technological information and conducting whatever possible to make it accessible under regulations and laws that conform to objectives and conditions of the Kingdom (MCIT, 2007). The strategic element concerning ICT and the related eight policies, include (MCIT, 2007):

1. Support and develop national databases for science and technology, assure that they are easily accessible and continuously update them.
2. Adoption of national systems and programs that encourage the production, transfer, dissemination and exchange of information and simplify their use.
3. Support and development of science and technology information systems and facilitation of their acquisition in a manner that enables the Kingdom to keep abreast with the information age.
4. Interconnect the scientific organizations and research centres using a high speed national information network, so as to facilitate the exchange of expertise inside and outside the country and boost scientific research and technological development.
5. Provide the necessary machineries that guarantee the security and protection of information.
6. Consolidate and support the position of the Arabic language in the area of ICT.
7. Concentration on the indigenization and development of information technologies that have an effective impact on the competence and efficiency of information and its services in the Kingdom.
8. Preparation of an ICT national plan that conforms to the objectives and directives of the national policy for science and technology and supports comprehensive development in the Kingdom.

Table 1.
The general objectives of the NCITP (MCIT, 2007)

Objectives	Domain
Raising the productivity of all sectors, dissemination of electronic governmental services in business, social and health, and encouragement of teleworking through the optimum utilization of ICT.	Services and productivity
Regulating the ICT sector in a form that guarantees impartiality, stimulation and attracts investment.	Sector regulation
Building a solid information industry that is locally and internationally competitive, through reliance on scientific research, innovation, development in strategic areas, regional and international cooperation, so that it becomes a major source of income.	Information industries, innovation and development
The optimum utilization of ICT at all levels of education and training.	Education and training.
Enable all sections of the society in all parts of the country to deal with ICT easily and efficiently so as to bridge the digital divide.	The digital divide
The optimum utilization of ICT in serving the Arabic language and consolidating the civilizational mission of Islam, patriotism and Arabic language.	Islam, (Al WATAN), Arabic language
Provision of qualified, trained human capabilities, from both sexes, in the various specializations of ICT through the preparation of national manpower and the attraction of foreign expertise.	Development of human resources and the preparation of manpower.

Based on these eight policies the National Communications and Information Technology Plan (NCITP), sets out seven general objectives together with their domain of application, with the aim of bridging the digital divide within the country. The general objectives of the NCITP are shown in Table: 1.

It will be seen that the fourth objective of the NCITP plan is to ensure the best possible utilization of ICT in education and training. The realization of this objective is stated through three specific objectives, seven implementation policies and eight projects (Table 2).

Table 2.

*The specific objectives, implementation policies and projects
regarding ICT in education and training (MCIT, 2007)*

Specific Objective (15): Employment of ICT in supporting education and training and adoption of e-learning	
Implementation Policies	**Projects**
Establishment of a reference Agency for e-learning.	Setting up a national centre for e-learning
Development of educational curricula so as to include e-learning and increase the interactive digital content.	Employment of ICT and the Internet in supporting general education.
Specific Objective (16): Preparation of all people involved in the education process (Teachers, administrators, students) for the use of ICT in education	
Implementation Policies	**Projects**
Prepare students and education-related staff for the use of ICT.	Introduction of ICT subjects in school curricula. Train education-related staff on the use of ICT.
Consider knowledge of ICT basics a factor in screening for admission or promotion in educational institutes.	Issuing regulations for appointment, admission and promotion requirements for teachers.
Specific Objective (17): Development of the infrastructure in educational institutes	
Implementation Policies	**Projects**
Raise the level of electronic readiness in all educational institutions.	Dissemination of ICT systems in all educational institutions.
Facilitate access to information and libraries.	Providing digital libraries.
Secure the necessary funding to support ICT projects in education and training.	Provide the necessary budgetary allocations for ICT projects in education and training.

The Internet service became officially available in the Kingdom in 1997. Since then, according to http://www.internetworldstats.com/middle.htm#sa) Internet World Stats (the number of Internet users in the Kingdom has risen exponentially.

In March, 2008, there were approximately 6.2 million users and a 22.0% penetration rate, and in September 2007, there were 218,200 broadband connections (from http://www.internetworldstats.com/middle.htm#sa). It is foreseen that Internet usage will keep growing rapidly as the infrastructure improves, access costs reduce, the population increases, and the 60% of the population comprising teenagers and young adults adapt to the new technologies (internet.gov.sa, 2007). Saudi Arabia's state of 'e-readiness' is evidenced in developments in e-government and e-health. A number of e-government projects have been implemented or are under development by various government bodies.

Examples of this include the e-government portal, e-government network, public key infrastructure (PKI), national smart ID cards, e-Payment gateway (Sadad), Social Insurance System, and electronic information exchange in 2005, the Ministry of Communications and Information Technology embarked on the e-government program in conjunction with the Ministry of Finance and Communications and Information Technology Commission (CITC). One of the main goals was to develop a governmental portal for services and to work on the presence of the government infrastructure.

This program was called 'Yesser' (http://www.yesser.gov.sa). Other government institutions and agencies including the Ministry of Interior, Ministry of Foreign Affairs, Ministry of Hajj, Ministry of Labor, Finance and General Investments Commission are also providing some of their services electronically (MCIT, 2007). The UNDP has collaborated with the Ministry of Foreign Affairs in developing the e-readiness, e-transaction and e-service of the ICT Infrastructure in order to prepare for e-government. UNDP has also engaged with the Ministry of Foreign Affairs (MOFA) to develop the e-readiness, e-transaction, e-visa and other e-services of MOFA systems and deal with various bodies, such as local governments, Ministries, banks, Royal Embassies and the large number of Saudi citizens around the globe (MCIT, 2007).

Another reflection of the government's recognition of the importance of ICT is the involvement of the King Abdulaziz City for Science and Technology

(KACST) (http://www.kacst.edu.sa), an independent scientific organization reporting directly to the Prime Minister, in ICT development. KACST operates the internet backbone in Saudi Arabia as well as the local registry address space, and through its BADIR-ICT project, provides a national ICT technology incubator.

In regard to e-health, many government hospitals, military hospitals, National Guard hospitals, King Faisal Specialist hospital, university hospitals and private hospitals and medical centres have automated their various operations including the management of medical records and human resources.

By comparison, the use of e-commerce in the Kingdom is still very limited. This can be attributed to the incompleteness of the underlying infrastructure and related regulations.

However, to develop and promote e-commerce in the country, in 2008 an e-commerce committee was formed, headed by the Ministry of Commerce and Industry, and this work is continuing under the aegis of the Ministry of Communication and Information Technology (MCIT) as the Permanent Committee for Electronic Transactions. Efforts are also being made to bridge the country's digital and educational divide. For instance, in 1999, a pilot project in Internet-based distance training for Saudi professional women was initiated under UNDP to enable these females to become more productive and develop professionally (Khan, Shazli, Khan, & Sait, 2000).

Saudi Arabia is also seeing moves towards 'teleworking', for example, in journalism, publishing and Web design. This type of work helps to utilize the capacity of its citizens and is particularly suited to the working needs of Muslim women (MCIT, 2007).

In yet another initiative, the MCIT and CITC have jointly launched the Saudi Arabia Home Computer Initiative (SaCHI) or 'Tawasul' project (http:www.tawasul.com.sa). Through this, the CITC aims to induct Saudi citizens into the information society. For around US$25 a month, families can get a fully functional computer equipped with a pre-installed software suite including desktop applications and a wide range of Islamic and Arabic digital literature along with free 15 hours of Internet usage for two years plus free training. The initiative aims to add at least one million personal computer users to the Saudi market.

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As shown in the following section, Saudi universities and colleges are adopting e-learning. There are strong financial as well as access and equity motivations for this. Dubai-based Madar Research estimates that the Saudi e-learning market will expand by 33% annually over the next five years.

E-LEARNING AND ICT INTEGRATION

Schools

The use of computers in teaching and learning in schools began in the 1990s (Oyaid, 2009). In 1996, the MoE established the Computer and Information Centre (CIC) to be responsible for ICT infrastructure and employment in education. Today, the CIC provides a range of ICT services to schools, educational centres and MoE offices and the MoE is promoting new curricula, developing teachers' and student' capabilities in ICT.

There are computer labs in virtually all secondary schools and intermediate schools are now being similarly equipped to enable students to have first-hand experience of using ICT for research, creativity and experimentation (Oyaid, 2009).

MoE initiatives in support of ICT integration in schools have included an ambitious computer project launched in 2000 and covering all schools in the Kingdom, the WATANI Schools' Net project launched in 2001 to connect schools and educational directorates by means of a wide area network covering the entire country, approval for teaching computer studies in primary schools in 2003-2004, the electronic school project, the purpose of which was to build a website for each school in the country through which each school could publishes its news and students grades, and many pilot projects. Most public school libraries have been transformed into Learning Resources Centres, containing ICT multimedia as well as print teaching and learning resources.

The Need for Local Content Is Recognized and Multimedia
Educational Programs Have Been Produced By Semanoor
E-Learning and Training Company

(http://www.semanoor.com.sa), is a local software company specialising in education. In collaboration with Intel, Semanoor has also produced an electronic version of all official government K-12 public and private schools' curriculums (male and female), which is available in DVD form or through the MoE website (http:www2.moe.gov.sa/ebooks).

Semanoor also provides a set of tools such as: Semanoor browser, multimedia library and electronic class system; These tools help teachers to develop their own e-lessons with minimal training, taking them from a level where they are merely implementing other people's lessons to a level where they can tailor their own plans to the needs of their students. Similarly, Obeikan Education with collaboration with Intel has launched a website called Skoool (http://www.skoool.com.sa) that contains over 250 interactive lessons for math and science for K-12 students.

Through the Jehazi project (http://www.jehazi.org), the MoE is enabling all teachers to have their own laptops along with other equipment such as printers and scanners, by paying reasonable price in the form of monthly instalments. Teachers are provided with support and incentives to apply for International Computer Driving License (ICDL) and Teacher Computer Driving License (TCDL) with international accredited corporations (ICT in Saudi Arabia, reference WSIS/PC-3/CONTR/25-E, 28 May 2003, page 10).

The MoE has also initiated a project for training teachers' online (http//:www.tadreebi.net). The website offers in both the technological and educational aspects of e-learning and teachers are certificated on successfully completing each course.

In 2008, MoE also launched the Google Educational Program. This initiative currently involves 1,200 schools and more than 20,000 teachers and participants are provided with personal emails, access to office applications, program schedules and personal websites.

MoE has also signed Memorandums of Understanding with Intel and Microsoft to establish several educational, training and e-learning programs for students and teachers, which would facilitate schools entrance into the knowledge society. Private schools such as King Faisal School, Kingdom school and Riyadh school are also embarking on e-learning, equipping their classrooms with computers, smart boards, data show, etc and delivering some of their courses via dedicated Learning Management System (LMS).

Technical Education and Vocational Training
In 2002, GOTEVOT, the government authority responsible for technical education and vocational training in the Kingdom, established the E-Learning Training and Resources Centre (http://www.elearning.edu.sa) which provides an e-library of more than 50,000 books and more than 3,000

training programs for lifelong learning and community services with electronic training portfolios. GOTEVOT also publishes its technical and vocational courses in Arabic as well as in English on the Web.

These courses include Management Technology, Chemical Technology, Telecommunications Technology, Computer Technology, Food Production Technology, Tourism and Hotels Technology and Poultry. They were developed by the general Directorate for Design and Development of Curricula (DDDC) in GOTEVOT and are fully accessible and freely available through the (http://www.cdd.gotevot.edu.sa/en/index.htm) website.

GOTEVOT has also signed a Memorandum of Understanding (MOU) with Cisco, Microsoft and ICDL to deliver electronic courses training packages covering these technologies to its students and vocational training centres.

Higher Education
The MoHE recognizes the need and potential for a co-coordinated and collaborative approach to e-learning in the universities. There is a considerable shortage of female lecturers in the gender-segregated institutions, thousands of students are over-enrolled by these institutions and simply given the course materials and sent home to study on their own, and there are many demands for part-time study.

The universities have quite good technical facilities but these need to be better employed to provide equitable and quality education (Almohaisen, 2007). It was for these reasons that in 2006, the Ministry established the National Centre for E-Learning and Distance Education (NCeDL) (http://www.elc.edu.sa) to provide nationwide e-learning development in higher education with assistance from Open University of Malaysia and Multimedia Technology Enhancement Operations or METEOR (Almegren, Al-Yafei, & Hashem, 2007). This centre is responsible for a range of research and development initiatives aimed at facilitating next generation e-learning in Saudi higher education, including the National Learning Management System 'Jusur', based upon the OUM LMS and the National Repository 'Makniz' to store, manage and share learning objects between Saudi universities.

The centre also runs a project called 'Tajseer' which is designed to help progress from the more traditional ways of teaching and learning to more advanced methods through the use of technology. NCeDL also offers training

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programs aim to improve the abilities of female faculty members in Saudi universities and others interested in the field of e-learning and its applications. These cover instructional design, designing interactive lessons using CourseLab and how to use the Jusur Learning Management System and Jusur Learning Content Management System. The Centre also operates an E-learning Excellence Award scheme. NCeDL has also established alliances with some international e-learning agencies. Jusur was developed by the Malaysian METEOR company, the Maknaz learning object repository is being developed using HarvestRoad Hive, an Australian based-company, and Makanz content will be developed initially by TATA Interactive Systems, an Indian e-learning company.

The public universities are also beginning to embrace e-learning. The E-learning Centre in the Deanship of Academic Development at King Fahad University of Petroleum and Minerals which was established in 2003, (http://www.kfupm.edu.sa/dad/elearn/about/elearn.home.htm) promotes the use of the web in teaching and learning at the university using WebCT to offer integrated access to online resources by students and instructors. KFUPM has also joined the global movement for open sharing of educational content online through the OpenCourseWare Consortium. KFUPM http://opencourseware.kfupm.edu.sa;http://ocw.kfupm.edu.sa contains Arabic and English language materials from approximately 80 KFUPM courses including engineering, sciences and industrial management. Alfaisal University (http://www.alfaisal.edu/default.htm), a newly established private university, has also joined the OpenCourseWare Consortium.

King AbdulAziz University (KAU) (http://elearning.kau.edu.sa) has a long tradition of print/correspondence-base distance education and since 2005, when the Deanship of Distance Learning was established, has embarked on online course delivery. KAU uses the EMES LMS and virtual classrooms to provide extra learning support for students enrolled in the first and second year in basic science courses, particularly Mathematics and Physics.

The university also contains a digital library of 16,000 e-books. King Khalid University in Abha (http://elearning.kau.edu.sa) established its Deanship for e-Learning and Distance Learning in 2006, King Saud University in Riyadh, http://www.ksu.edu.sa/sites/KSUArabic/Deanships/Elearn/Pages/default.aspx Deanship for e-Learning and Distance Learning in 2007 The http://www.kfu.edu.sa/en/deans/development/elearningunit/pages/home.aspx

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e-Learning Unit at King Faisal University was established in 2008, as well as the Deanship for e-Learning and Distance Learning at Imam University (http://www.imamu.edu.sa/support_deanery/e_learn/Pages/default_01.aspx#) The Prince Mohammed bin Fahad University in Dammam and Effat University in Jeddah have also established e-learning centres to use online methods to augment the educational experiences of their students. These universities and others have also equipped their lecture rooms with interactive white boards, data shows, e-podiums, Polycom video conferencing solutions and multi media centres.

Digital distance learning via satellite, microwave, and wireless networks is also delivered (http://www.medu.net.sa) by MeduNet, a leading Saudi e-health services provider which provides real-time classes, symposia, etc. for the Kingdom's medical schools, government universities and ministries in collaboration with leading US healthcare institutions. MeduNet has agreements with George Mason University School of Nursing to provide nursing education classes and with Columbia Presbyterian Medical Centre and other providers of telemedicine services.

The Corporate and Ministry Sectors
As noted earlier and in common with other Arab countries, e-training is only just the beginning. The early adopters tend to be the larger companies employing large numbers of staff and / or operate regionally which therefore need to economize on their travel and training costs. These companies depend largely upon advice and support from their parent or overseas organizations and customize their programs by translating them into Arabic and incorporating local case studies (Gain, 2005). One well-known corporate provider is the Arabian American Oil Company (ARAMCO) which it uses e-learning to provide personal improvement, recertification and lifelong learning to its 50,000 employees. Its e-Learning Site contains more than 1,512 courses with subjects ranging from Business, IT, Engineering, Leadership, to Job Skills. The e-Learning Site uses videoconferencing and virtual classroom delivery methods.

Similarly, SAMREF, an Aramco subsidiary oil-refining company, is supporting e-learning by providing employees with full training packages. In 2004, the following courses were carried out: 220 off-site courses in Technical and Management and 68 in-house courses in Technical, Computer and English language (http://www.samref.com.sa/english/saudization.asp).

The Saudi Electricity Company is using the "iLearn" system, an e-training system that was applied for the entire company employee after a trail period of three months.

The e-training system offers courses in administrative skills, computer, English as well as technical courses. In 2007, more than 3840 employee (http://www.se.com.sa/SEC/Arabic/Menu/Employees/Iam+Learning)
accessed the system to reach 311 courses The General Presidency for Promotion of Virtue and Prevention of vice (PVPV), an independent governmental organization, has recently launched an electronic (http://www.alriyadh.com/2009/04/27/article425243.html) training site for its employees The training packages will cover topics in communication skills and religious knowledge.

In early 2009, the Saudi Telecom Company, a major telecommunication company in Saudi Arabia, has signed an agreement with Cisco to supply Cisco WebEx web and audio collaboration technology to local businesses. STC supplied WebEx technology to the First International Conference of e-Learning and Distance Learning held in Saudi Arabia, with the event encouraging partnership and cooperation between public and private sectors in the areas of e-learning and e- training development.

Individual Initiatives
There are also bottom-up developments taking place. For example, a group of female researchers at the Information Technology Department at King Saud University has recently launched an Arabic learning object repository called 'Marfiah' with recommendation (http://www.marifah.org) capabilities to serve the needs of the Arabic educational community under an open licenses (Al-Khalifa, 2008). Mirza (2007) describes the application of modern telecommunications simultaneous course delivery to male and female students in the Master of Health Informatics program at the King Saud bin AbdulAziz University for Health Sciences.

Likewise, Alrumaih (2008) shows the uptake of JUSUR at Prince Sultan Military College of Health Sciences to conduct online discussion and quizzes, submit homework and disseminate lecture notes among female students enrolled in the Nursing Department's pharmacology course at the nursing department. Overall the students' level of satisfaction was shown to be very high, despite the problems of Internet access in Saudi Arabia.

Finally, many individuals have also established online training via web forums or synchronous web conferencing systems. Websites such as *maharty.com* and *at3lm.com,* to name but a few are exemplars of this kind of online training.

RESEARCH AND TRAINING IN E-LEARNING

Most research in the field of eLearning and Distance learning are carried out in the form of master or doctorate research or by individual academics. Shedding the light on research being done in the Kingdom can be witnessed in some of the contributed papers presented at the first International Conference of eLearning and Distance learning (http://eli.elc.edu.sa) held in Riyadh.

For instance, Basuhail (2009) demonstrated in his paper "Design and Implementation of an E-learning Content Using Simple and Obtainable Tools", the use of PowerPoint, a Microsoft Office software package, for delivering E-course content in some of his taught courses.

While in Al-Khalifa (2009) paper she conducted a comparative study between JUSUR LMS (one of NCeDL products) and Weblogs.

On the other hand, Al-Natheer and Khashan (2009) measured the attitude of preparatory year students toward the use of McGraw Hill MathZone in the Precalculus course.

As has been stated before, the national centre for e-learning and distance learning (NCeEL) provides training program each semester on JUSUR LMS, ID. It also conducts international training programs for faculty staff in the Kingdom to Malaysia, Korea, Japan and UK. These training programs range from (http://www.elc.edu.sa/portal/index.php?mod=smr) case studies to advanced el-learning programs.

Outside the umbrella of academic settings, some research is carried out in non-formal adult and community education. As an example, the Saudi prison system allows offenders to continue their education.

The educational prison system parallels that the regular schools, but does not cater for those who have never attended school and is limited to a few basic subjects such as religious studies, self-development, electricity and

plumbing. Surveying female and male inmates in the prisons in Riyadh, Makkah and Qassim, Al Saif (2007) found that they were very positively inclined towards distance education and web-based learning although their attitudes were influenced by the extent of their computer and Internet skills, access and prior education and training.

CONCLUSIONS

The Saudi government is beginning to implement modern educational reforms and the MoE and MoHE are encouraging and supporting e-learning.

The e-learning agenda is also being supported in higher education through the work of the National Centre for E-learning and Distance Education and within the universities themselves. However, there are still many challenges. Human capacity is an important factor in the adoption and successful application of e-learning, and there is still:

- A lack of belief in the effectiveness of e-learning and lack of computer literacy and understanding of the requirements of e-learning among students and teachers.
- A lack of training in pedagogy and managing e-learning environments.
- A lack of incentives for using e-learning.
- Inadequate managerial understanding, strategic planning and funding in public sector organisations.
- The lack of coordination and conformity in procedures, standards and specifications, leading to duplication in efforts.
- A lack of awareness of e-learning in the corporate sector

Also, there is a lack of policy-making in regard to:

- Quality assurance in e-learning.
- Equivalency in admissions and graduation between distance teaching regular university universities.
- Accreditation for cross-border distance and online learning and cross-border.

Telecommunications infrastructure is improving in Saudi Arabia and Internet services are extending to the more rural areas, but unreliable technology and infrastructure and poor maintenance and technical support could negatively affect the availability of, and accessibility to, online learning.

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CHAPTER-32

eLEARNING IN SERBIA
The State and Development
of E-Learning in Serbia

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ABSTRACT

Knowledge based society is built on educated and very skilled people and in last decade ICT, eLearning and distance learning support these activities. eLearning and distance learning facilities are important for regular students but also for employed people (important support for lifelong learning). eLearning can contribute to the development of the Educational System in the West Balkan region, and have a high social importance with direct impact on the creation of new job opportunities. Quality and capacities of educational institutions must be significantly improved from elementary schools to doctoral studies.

The need for modernized and ICT supported learning processes, adapted to specific local education system needs, is evident in Serbia today. Implementation of eLearning as a support to education represents the opportunity for everybody to have the access to educational materials.

It will enable equal opportunities for all population segments, to continue with their education. In this chapter different educational issues and aspects in Serbia today are discussed. Current state-of-the-art and further necessary steps are pointed out and suggested.

COUNTRY

Republic of Serbia is located in Central and Southeastern Europe (part of Balkan Peninsula and Pannonian Plain). After the World War II, Serbia was a part of Social Federal Republic of Yugoslavia.
After disintegration of Yugoslavia (1990s); it became an independent state in 2006. Serbia is populated mostly by Serbs (83%), while the significant minorities include Hungarians, Bosnians, Albanians, Roma, Croats, Czechs and Slovaks, Macedonians, Bulgarians, Romanians, Germans etc.

Figure 1.
A map of Serbia

(as recognized by United Nations at the end of 2009)

Economy of Serbia is, by the World Bank, an upper-middle income economy. Its economy was hugely impacted by breakup of Yugoslavia, several recent wars, UN economic sanctions. After the overthrow of Slobodan Milosevics' regime in 2000, with the GDP growth rate of 6.3%, 5.8%, 7.5% and 8.7% from 2005-2008, Serbia is considered as the fastest growing economy in the region.

Culture being divided for centuries between Roman, Byzantium, Ottoman, Venice and Austria-Hungarian Empire, Serbia had overlapping influences in different parts of the country. By the Encyclopedia of World History (2001) it is considered as "most westernized of the Eastern Orthodox peoples, both socially and culturally". Education is controlled by the Ministry of Education. It starts at the age of seven in elementary school, and lasts for eight years. Secondary school lasts for 4 years (3 years for vocational schools). Serbia adopted Bologna principles (Ministry of Education and Sport, 2009) for tertiary level education: three years for a graduate diploma; two for master diploma, and three for doctoral degree. Some of most important Educational Priorities are:

- Adopt national strategy of education
- Increase quality of education for socially excluded children
- Developing adequate preschool curriculum
- Inclusion of children with special needs in all levels of education
- Improve school quality: education attainments of all students; Improvement of methodology; promotion of inclusive, child centered education; reduction of school violence; improvement of school sanitation and reduction of drop out rates.

Religion being straddled for centuries between Orthodoxy, Roman Catholicism and Islam, Serbia continues to be one of the most diverse countries in Europe. Differences are vast –while northern province of Vojvodina is 25% Catholic or Protestant, central Serbia and Beograd regions are over 90% Orthodox Christian.

EDUCATION

By the laws, education is equally accessible to everyone. Regular education (Figure 2.) at all levels is financed from the budget of Republic of Serbia. Yet, enrollment quotas are based on the market needs, and are re-evaluated every year. Minority members have the right to educate in their own languages (Youth, 2009; Vocational Education, 2009), Elementary education is obligatory, starts at the age of 6 or 7, and lasts 8 years. Secondary education is not obligatory, there are three types:

- Gymnasium/grammar school - general purpose education (4 years),
- vocational-4 years, and
- craft -3 years.

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Figure 2.
Structure of Serbian educational system
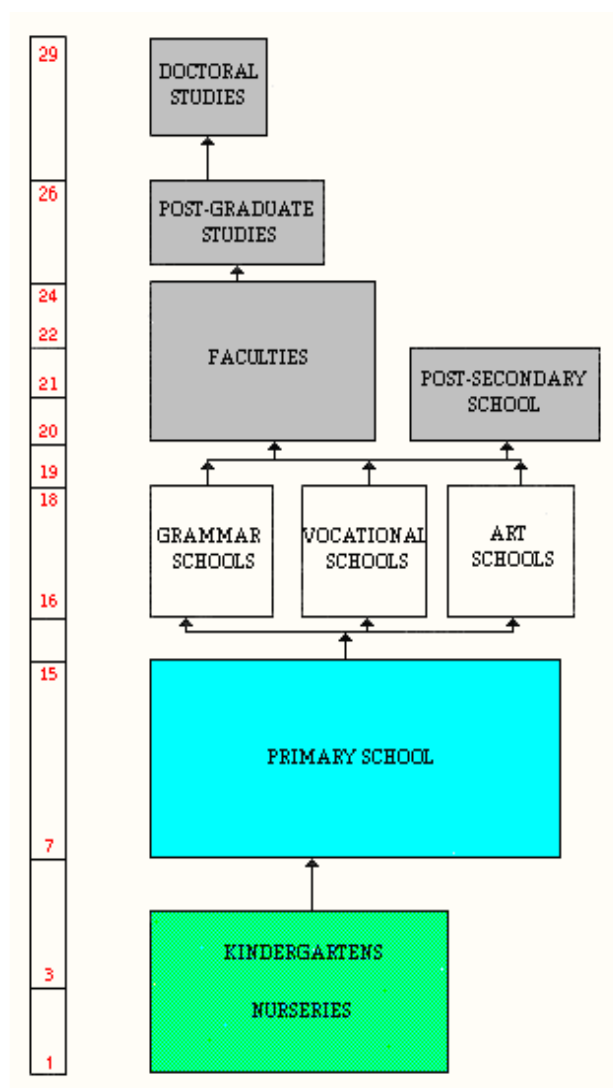
High education is possible at 7 state (84 faculties) and 8 private universities (56 faculties). Most of the faculties have passed the process of accreditation by the "National agency for High Education", in the last two years.

Figure 3.
Education at a glance: Serbia and Montenegro
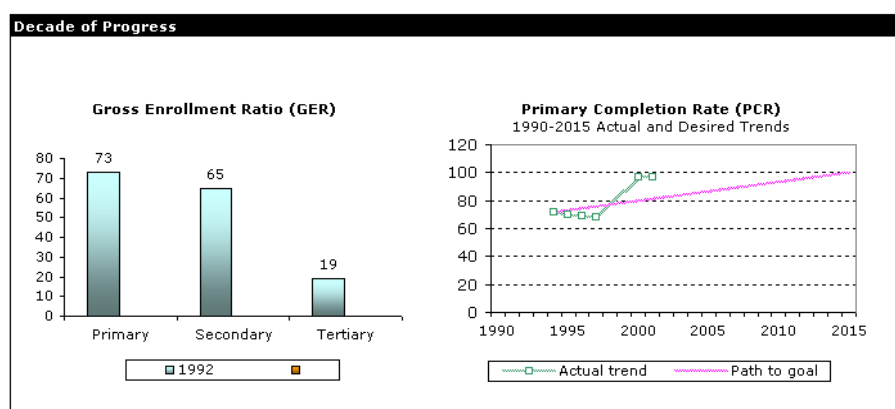
Figure 4.
Enrollment and drop-out education rate in Serbia

Access, Coverage and Efficiency	Total	Male	Female
Gross Intake in Grade 1 (%)	98	98	99
Primary Gross Enrollment Ratio (%) (4 years)	98	98	98
Primary Repeaters (% of primary cohort)	1,0	1,0	1,0
Primary Drop Out Rate (%)	4,4	5,2	3,5
Primary Completion Rate (%)	96	97	96
Expected Primary Completion Rate (%)	94	93	95
Number of Primary Age Children Out of School (thousands)	8	4	4
Primary Gender Parity Index (GER ratio)[a]	1,00		
Secondary Gross Enrollment Ratio (%) (8 years)	89	88	89
Lower Secondary (%) (4 years)	98	99	97
Upper Secondary (%) (4 years)	80	78	82
Vocational and Technical (% of secondary enrolment)	35,1	36,9	33,2
Secondary Gender Parity Index (GER ratio)[a]	1,01		
Tertiary Gross Enrollment Ratio (%)	36,3	33,0	39,7

Coverage of children at entry to elementary school is 98.3% of the generation (SEE, 2009). While the officially reported drop-out rate is around 5%, there is no systematic monitoring of the data on drop-out rates for children from educationally high-risk groups (Unicef 2, 2009).

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According to professional estimates, the real drop-out rate is 15% over the course of eight years of schooling, and 7% between elementary and secondary school. The percentage of children dropping out of school is high with the rural population, the Roma, displaced persons and children with disability. General data concerning enrollment and drop-out rate is presented (Unicef 2, 2009) in Figures 3. and 4. .

Ministry of Education biannually issues a list of „obligatory programs of vocational education" for teacher licensing (Zavod, 2009). Since 2004 on this list there exist several programs based on wider usage of ICT.

At the official web-site of Serbian Government, there is a list of more than 2100 donations made exclusively for educational purposes (List, 2009), of which around 1200 are already received, since changes in Serbia. Education is also supported by non-governmental agencies, foundations and organizations: TEMPUS (Tempus, 2009), DAAD (DAAD, 2009), WUS (WUS, 2009), Scopes (Scopes, 2009), SEE-ERA.NET (Seera, 2009). Mobility of teachers and students is achieved through various projects and networks: CEEPUS (Ceepus, 2009), ERASMUS-MUNDUS (Erasmus, 2009) and so on. An example of successful application of those funds is the development of curriculum for master studies (Bothe et al., 2009).

DISTANCE EDUCATION

Open schooling in Serbia is meant to offer each individual capability for a complete social participation, improvement in a quality of life, personal choice, employment, ability for a continual professional development, and ability for a life of a higher quality in a healthy environment. In other words, open schooling should enable Serbian citizens knowledge acquisition, both for young and adults, acquirement of skills and competencies needed for a successful work and employment, and further education and learning with appreciation for sustainable development of the whole society.

Strategy of Serbian Government concerning adult education is actually invitation to creation of learning culture, organization of society and economy on the bases of knowledge and advancements in achievements and capabilities of adults (Government, 2009). Lifelong learning considers educational programs and processes that happen after finishing of obligatory education and entering of working environment, in order to:

- advance knowledge, skills, and competences,
- achieve new competencies, and
- further personal and professional development (Ivanovic Greece, 2007).

Strategy of adult education is based on attitudes that it is:

- Manifestation of lifelong learning and integral part of the whole educational system;
- Powerful factor of economic development, productivity increase, raise of the employment level, and lowering of disproportions in economic development;
- Corrective factor for regular educational system, giving another chance for acquisition of relevant skills;
- Innovative mechanism of an educational system, capable for immediate reaction to the needs of a society;

Serbian "National Council for High Education" developed in late 2006 document "Statute of Standards and Procedures or Accreditation of Faculties and Faculty Curricula" (Policy, 2009). Within that Statute, one of the standards deals with distance education. It claims the following:"Distance education: Study program, based on methods and technologies of distance education is supported by resources that enable qualitative execution of this study program. Faculty can organize distance study program for each area, and for each educational-scientific and educational-artistic field, if educational content, supported by available resources, can be qualitatively adopted through distance studies, and if it secures the same level of knowledge of graduated students, same study efficiency and the same diploma degree, as in case of usual methods of study program realization". Requirements for study methods and tools are explained in some more details in the Statute:

1. Course contents should be conceptually adjusted to distance learning, with clearly noted consultation hours;
2. Learning guides, provided by the faculty, contain concrete proposals and suggestions about the learning strategies of students and self-testing;
3. Testing subsystem is integrated into a LMS (learning management system) and supports different learning and assessment methods (consultations, self-testing, pre-tests, reports, exam);

4. Exam is executed within the premises of the faculty;
5. Faculty provides necessary equipment and ICT for keeping and maintaining two-way communication between lecturers and students, needed for realization of distance education. Within the distance learning system, faculty must provide:

- one owned or rented integrated computer platform (Distance Learning System), equipped with specialized software for storage and distribution of multimedia teaching resources, created for independent learning and complete management of learning process;
- different forms of teaching: public broadcasting of timely planned teaching event (lectures or discussions of teachers/experts, recorded live, or prepared in advance), lectures delivery, and multimedia teaching resources available at the server, and consultations for guided and informal studies through discussion forums;
- unique user interface supporting different user categories, including students, teachers, and administrative stuff;
- quality two-way communication of teachers and assistants with students, through e-mail, discussion forums and real-time discussions;
- ability to record time student spent studying teaching material, and checking and assessment of students knowledge through tests, and with complete support of specialized software system;
- High reliability of a system, through appropriate control and management system, including access control, and protection of resources.

Current providers of distance education facilities in Serbia are universities, but not all of them, and some major international companies.

TECHNOLOGY

Official "Strategy of the Development of Information Society in Republic Serbia" (Information Society, 2009; Ivanovic Bulgaria, 2007), adopted by the Government of Serbia in 2005., declares the main principles of the future development of information-communication society in Serbia, quoting conclusions of "Declaration of Principles" of the World Summit on the Information Society held in Geneve, 2003.

Strategy claims a need for creation of: "…information society, in which everyone can create, use, and exchange information and knowledge, enabling individuals, communities, and nations do achieve their full potential in promotion of sustainable development, and enhance the quality of their lives.". In order to enable legal environment for the development of ICT, Government enumerates a list of regulations already existing in Serbia. The most important ones, in connection with computers, are:

- Law about the legality of electronic documents, Law about the protection and security of public information system,
- Handbook for creation of information system of government agencies, Laws covering copyright protection, privacy, data protection,
- Law concerning free access to information of public interest,
- Law about electronic signature.

Besides those, Government is in a process of acceptance of additional laws that will encompass the system, such are:

- Law about eBusiness,
- eGovernment,
- protection of personal data,
- privacy in eCommunications, and
- laws about eDocuments and eArchives.

Some statistical data available for 2008, about Internet usage in Serbia (Internet, 2009), in comparison to Europe and whole world are given in Table 1.

Table 1.
Internet usage in Serbia in 2008

Population (2008 Est.)		Internet users	% Population Penetration	User Growth 2000-2008	% Users Europe
Europe	803,903,540	393,373,398	48.9%	274.3%	100%
Serbia	8,032,338	2,602,478	32.4%	550.6%	0.7%
World	6,710,029,070	1,596,270,108	23.8%	342.2%	

As can be noticed, while covering approximately 1% of population of Europe, Serbia has somewhat less percentage of Internet user than that (only 0.7%), and Internet penetration of population is also bellow European average (32.4% vs. 48.9%). Yet, with the user growth being double higher than for the whole of Europe, Serbia is on a good way of improving its' position.

Within the report of Economist Intelligence Unit about eReadiness, there is no data for Serbia, but as can be found in "The ICT Sector Status Report", created by United Nations Development Programme, The Stability Pact for South-Eastern Europe, data for the Serbia is the following (data is from year 2004):

- Penetration of fixed telephony   > 95%
- Access to computers   > 16%
- Access to Internet   > 14%

Computers are available in almost all elementary and secondary schools in Serbia, but not all of them are available to pupils (70% of the ICT equipment is used by pupils, 8% by teachers and 12% is reserved for school administration). According to the total number of pupils in Serbian schools, there are 0.03 computers per student (3 computers per 100 pupils). According to UNESCO study (Unesco 1, 2009), when this area is considered, Serbia is approaching the leading countries in the region. Schools generally have Internet access, though in some cases it is not available to pupils. Some of the national Internet providers directly supported ICT development in Serbian secondary schools by providing broadband access to a large number of schools.

The majority of Serbian schools (79%) have their own Web sites (not rarely developed and maintained by students), and some initial steps towards the application of eLearning tools and methodologies can be noticed (Ivanovic Bulgaria, 2007).

"Academic and Research" network of Serbia is funded as a special project by Ministry of Science, Technology and Development, and all of the Universities are connected to "Academic Network". Also, COBISS Initiative connects libraries of Balkan countries into functional shared cataloguing system.

Russian Institute of Information Society (Institute, 2009) also published data about the information society development in Central and Eastern Europe and Central Asia, where Serbia is included. According that data, (data from 2005), Serbia is ready and equipped for: eInclusion, eLiteracy, eSkills, eAccess, eInitiatives, eNetworks, eLaw, eGovernment, eBusiness, eLearning, eHealth (Institute Report, 2009). At Bharat Book Bureau (Bharat, 2009.), within the "Information Technology Report for Serbia" published in 2009., with the latest available data for each field, considering eReadiness, it has been reported that: "Demand for more sophisticated banking services is growing rapidly among an increasingly financially literate public, and after four years of development, the National Bank of Serbia's (NBS) automated inter-bank clearing system has developed considerably. The electronic system (RTGS) covers 38 banks and 12 other participants with infrastructure comparable to modern payment systems elsewhere in Europe and the world.

On the e-government front, the Ministries of Education Science are being promoted as examples for other parts of government to follow as the administration rolls out its plans (see Industry Developments.)

The Ministry of Education has placed the whole process of enrolment in elementary and high schools on the web, while the web portal of the Ministry of Science, Technology and Development allows for personalization for registered users, and boasts a content management system, an additional portal for researchers, and web collaboration. Around 50 local governments are also involved in projects for 'good government,' which include an 'e-citizen' component. Overall, Serbia-Montenegro recently scored 80th place for ICT development in the "World Summit on the Information Society" rankings, out of a total of 115 countries for which information was collected. The main ranking criteria were number of available PCs, number of internet users and telecoms infrastructure."

E-LEARNING AND ICT INTEGRATION

In document "Strategy of Development of Information Society in Republic of Serbia", Government of Republic Serbia defined policy concerning eEducation (Information Society, 2009). Policy claims that "effective integration of ICT into an educational system is one of the catalysts for a creation of knowledge-based society and economy." Strategic aims in the field of eEducation are:

Raising the Level of Knowledge and Skills
For ICT Usage, With the Widest Population
Educate people to use computers and enable them to use ICT in everyday activities. Enable people to have enough knowledge, skills, and abilities to be concurrent workers in conditions of constant changes of information society.

Creation of A Modern Educational System,
Adjusted to the Needs of Information Society
Modernization of curricula on all levels, specially improving competence in critical thinking, teamwork, and usage of ICT tools. Implementation of new curricula through usage of modern learning methods, based on ICT. Support for modernization of schools, connection of schools to the Internet, enabling distance education, facilitation of methods and tools for eLearning.

Stimulation of research and development;
Strengthening of national research capacities, improvement of the research quality, broadening of knowledge and skill of researchers and preventing brain-drain. Support for research and development and enablement to companies and research centers to acquire knowledge, experiences, and references to be concurrent within a global market.

Assurance of Access to Information About
Natural, Cultural, And Scientific Legacy
Creation of national strategy for legacy digitalization, estimate needed resources, determinate priorities of digitalization and development of information systems. Creation of a specific legacy digitalization program, needed legal regulations, and standards. Provision of needed hardware and software, qualification of human resources, promotion of digitized legacy and its accessibility to public.

Governmental strategy requires creation of a new concept of an educational system: "… classical education should be drastically reformed, and a new educational model, based on creative thinking and lifelong learning, should be introduced, to be better adjusted of demands of information society."

Lifelong learning becomes one of the main objectives of the policy. Since a contemporary society is constantly changing, learning process lasts throughout the whole life. So, educational system should be made much more efficient and effective, and develop different forms of permanent,

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lifelong learning. Suggested methods for the achievement of strategic policy (Information Society, 2009) are:

- ICT should be used within a function of useful and valuable education, research and development;
- ICT in education should be used for introduction of contemporary concepts of eLearning and open distance learning;
- ICT should be a technological base for an up to date and efficient research and development.

At the same time, Government policy tries not to overlook and neglect social aspects of eLearning:

- Ability to use ICT has to be accessible to all citizens. This assumes training with ICT during the obligatory, elementary education, which country should secure through educational contents, creation of school networks, and connection of schools to the Internet, and provision of necessary technology.
- Differences in access to eEducation concerning place of living, income, education, age, or gender have to be surpassed.
- Special educational needs of certain parts of society should be considered. Gaining knowledge and skills about ICT for the adults, who didn't have a chance to get it on time, should be performed through social services and professional agencies. Special care should be taken on the education of teachers, and teacher training.

Key areas that have to be covered in order to deal with the challenges and to employ knowledge, are:
- Inclusion of wide population,
- Introduction of concepts additional adult education and lifelong learning,
- Adjustment of educational policies and process to the needs of information society,
- Qualification of teachers for contemporary teaching forms,
- Strengthening of ICT capacities for teaching and research purposes,
- Support for creative research and development, and
- Education and culture supported through usage of modern ICT.

CASE STUDIES

New generations, currently enrolling elementary and secondary schools, experience computers as a part of everyday life, so naturally they expect different education.

Within a project "Application of eLearning Teaching Methods in Secondary Vocational Education" (Student World, 2009), data is reported, that almost 2/3 of pupil has "medium" level of knowledge of computers, while almost 20% of them can be characterized as having a "high" level knowledge. 2/3 of pupil has "medium" level of knowledge of computers, while almost 20% of them can be characterized as having a "high" level knowledge.

The same source also documents intentions of pupil to continue their educational progress, especially in the field of expanding existing knowledge. On the other hand, official data of a Statistical Office of the Republic of Serbia (Statistical Office, 2009) for 2006. claims the following:

- 26.5% of houses in Serbia own a computer (highest rate in Beograd, with 30.7%);
  - within homes with income higher than 600 euro, 65.9% own a computer, while
  - homes with income lower than 300 euro, only 15.7% own a computer.
- 97.3% companies use computer in their work;

Considering the usage of Internet and distance education, pioneers in Serbia were Faculty of Economy in Beograd (since 2004.), and Faculty of Organizational Sciences in Beograd. Official distance education programs later were offered at the Civil Engineering Faculty from Subotica, and several private faculties: Economic Academy from Novi Sad, Megatrend and Singidunum Universities from Beograd. Currently, at a large number of faculties in Serbia, distance education facilities are offered starting from sporadic usage for several courses, to offering all of the courses covering curriculum of the whole direction.

At the official web-site of the most famous and mostly used LMS "Moodle" (Moodle, 2009), within a list of registered users of a system in Serbia, faculties given in the following list are mentioned. Here we emphasize that all of the mentioned faculties offer distance education as an additional

support to regular studies. In other words, instead of expensive official accreditation and later enrollment to distance studies, *blended learning* is used as a model, to support individual courses, up to the whole curricula, depending on the faculty.

Also, it is noticeable that coverage percentage is growing, same as the number of faculties using these facilities.

- Faculty of Civil Engineering, Subotica, University of Novi Sad, (http://athos.gf.su.ac.yu/moodle)–The whole curricula is offered in a form of distance learning;
- Faculty of Economics, Subotica, University of Novi Sad, (http://kruska.eccf.su.ac.yu/moodle)–the whole curricula is offered in a form of distance learning;
- Chair of Computer Science, Department of Mathematics and Informatics, Faculty of Science, University of Novi Sad (with more than 90 courses, and more than 700 users) (available at http://perun.dmi.uns.ac.rs/courses)
- Faculty of Electronics, University of Nis, Nis, (http://gislabweb.gislab.elfak.ni.ac.yu/nastava) –Web-site of the "Laboratory for Computer Graphics and GIS", covering courses presented at that Chair;
- Faculty of Organizational Sciences, University of Beograd, (http://myelab.net/moodle) he whole curricula is offered in a form of distance learning;
- Faculty of Medicine, University of Beograd, (http://www.reticulum.org/moodle) and also (http://www.bionet-skola.com/moodle)–Dealing more with localization of Moodle, training of teachers and students in its usage, and spreading the ideas of eLearning, than used in actual studies;

Some smaller faculties, from less developed parts of the country, and with smaller number of course covered, are:

- Technical Faculty of Čačak, University of Kragujevac, (http://itlab.tfc.kg.ac.rs/moodle)–with around 40 courses covered, most of them belonging to the Chair for Information Technologies, and also (http://e-lab.tfc.kg.ac.rs/moodle)–with around 20 courses;
- Mechanical Faculty of Kragujevac, University of Kragujevac, (http://moodle.mfkg.kg.ac.yu)–with a huge number of courses (around 240), covering all years of studies;

- Faculty for Traffic Communication, University of Beograd, (http://nastava.sf.bg.ac.rs)–again with large number of courses (around 170), but not equally distributed between different directions;
- Technical-business College in Užice, University of Beograd, (http://vpts.edu.rs/moodle)–just at the beginning of development, with only a few courses;
- University of Novi Pazar, Novi Pazar, (http://dls.uninp.edu.rs) with the whole web-site developed, but only a couple of courses:
- Vocational College for Electronics and Computers, Beograd, (http://e-learn.viser.edu.rs/moodle)–Institution dedicated to vocational education, but successfully using distance education and having over 50 courses developed.

Besides them, there are some private schools and training centers offering this type of education. Those are, for example:

- ITAcademy – training school established under the assistance of Cambridge University, and companies Microsoft and Adobe, (http://www.it-akademija.com/), Beograd
- Beograd Business School, (http://195.252.121.251)
- AlterLab, School for Virtual Courses for Exam Preparation, Beograd, (http://www.alter-lab.net/kursevi)
- Several schools for learning foreign languages, (http://elearn.providafuturi.edu.rs), Official, government agencies, also developed their web-sites offering help for usage of eLearning facilities:
- Agency for Improvement of Literacy and Ubringing, Beograd, (http://www.e-ucenje.rs)
- System for eLearning Support, Business Chamber of Serbia, (http://147.91.26.59)
- Agency for Development and Application of Science, Technology and Informatics, Novi Sad, (http://www.cnti.info/moodle)

At the beginning of 2008, at the "High School for Mechanical Engineering" in Novi Sad, a Distance learning center for the Province of Vojvodina has been officially opened (Center, 2009). Creation of a center is supported by the Province Secretariat for Education and Culture, and Administration

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Office for Education and Culture of a city of Novi Sad.Second important creator and user of eLearning and distance learning facilities in Serbia is „Cisco Academy". As it can be found at the web site of Cisco Academy (Cisco Academy, 2009), it is aiming at „giving opportunity to students to gain networking skills and knowledge, influencing the growth of number of IT specialists in a region, and finally faster development and technological growth of their country." One of the bigger centers for education (Cisco Beograd, 2009) under the licence of Cisco Academy is located at „Computing Center of the University of Beograd". It offers a large number of electronic resources, wikis, and other eLearning facilities to help enrolled students in their work.

Finally, third important direction in usage and application of eLearning and distance learning is the development of self-made systems, where we can mention some of the publications where authors were involved, such are (Komlenov, 2008; Ivanovic, 2008), or systems for the assessment of students work, such as (Pribela, 2009).

BARRIERS

Barriers influencing further development of eLearning in Serbia can be divided into several categories:

Technical Barriers
Situation with the Internet network is varied depending on the domain of usage. Academic network, that all of the Universities are using, is on a very high level of development and is constantly improving. Over the years, this system came a long way from serially linked computers to fiber-optical links of a great bandwidth, spread across each large university campus in Serbia. Access to a global network that government and private companies are using, is a mixture of strength, ranging from excellent, to a slow, interruptible, dial-up connections.

Finally, connections students are using to access eLearning resources are the biggest problem. Except in large cities, availability and connections to the Internet are either of a bad quality, or not available at all.

Administrative Barriers
Procedure for approval of inclusion of distance education as a part of official school/faculty is rather complicated. On the other hand, the estimated, and/or

realized profit is not high enough to approve the effort. Namely, average salary in Serbia is around 300 Euros, and there are a large number of both unemployed and poor people, not able to pay for such kind of education. This is especially true in case of lifelong learning, for adults in a need of additional education. Instead, most of the faculties are simply relying on some sort of blended learning. Facilities of eLearning and distance learning are offered as an additional resource to traditional face-to-face learning, even though those resources fulfill educational standards and would be sufficient as a separate, stand-alone feature.

Economical Barriers
After 10 years of economic sanctions of United nations, several wars in the neighboring countries effecting in a large number of refugees, and NATO bombing in 1999., Serbia is estimated falling down in economical sense, for more than 20 years! Since the changes in 2000., lifting of economic sanctions and large quantity of donations arriving to the country, Serbia started its development with a very high rate, but some time is needed to catch-up in all the areas.

Solution to the mentioned problems mostly depends on economic development of the country in the future. Being the country with the fastest growing rate of Internet users in the area, and also with the highest level of economic expansion rate, it can be expected that the situation with eLearning usage will be getting better and better as time passes.

Having the official strategy for the development of eLearning, and learning in general, Serbian Government has shown its attitude, so brighter future is expected. Additionally, currently, under the auspices of Ministry of Finance of Serbia and European Commission, a fund is created for the support of bilateral (IPA, 2009) and regional (Europe, 2009) projects. Also, a long list of internationally funded projects enables that current European and world standards in development of eLearning facilities are followed.

The largest international foundations interested in development of education in Serbia, and Balkan in general, and actively participating in funding international projects, are Tempus (Tempus, 2009), DAAD (DAAD, 2009), Scopes (SCOPES, 2009), SEE-ERA.NET (SEEERA, 2009). For example significant results obtained under one Tempus project devoted to the development of Joint Master Studies in Software Engineering are presented in a ComSIS journal (Bothe et al., 2009).

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CHAPTER33

eLEARNING IN SLOVAK IA

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ABSTRACT

The purpose of this chapter is to provide a view of the eLearning's state in the Slovak republic and possible implications for policy and practice.

The chapter does not seek to inform on a technical level, it assumes knowledge of terminology definitions, theories, research findings and case studies of eLearning and offers a view of the driving forces for eLearning, a historical context for its development in the Slovak republic.

First, the chapter introduces the general data about Slovakia, such as history, geography, people, educational system and its priorities, the role of distance education in the country, ICT and the role played by eLearning in it. Then, the major technical, economic, political, and socio-cultural factors of eLearning developments, and the major drivers and barriers for them in Slovakia, are assessed.

COUNTRY

The Slovak Republic is a landlocked country in Central Europe with a population of over five million and an area of about 49,000 square kilometers. Slovakia borders the EU member states Austria, Czech Republic, Hungary and Poland, and non-EU Ukraine in the east.

The largest city is its capital, Bratislava. Slovakia is a member state of the European Union, NATO, UN, OECD, WTO, UNESCO and other international organizations.

Figure 1.
A map of Slovakia

The Slovak Republic is the official name, but the geographical centre of Europe is mostly known just as Slovakia. Slovakia was considered a part of Greater Hungary until 1918, when it united with the Czech lands of Bohemia and Moravia, in addition to a small part of Silesia, to form Czechoslovakia. In 1939, shortly before the start of World War II, Slovakia declared its independence under pressure from German dictator Adolf Hitler, but in 1945 it was reunited with the rest of Czechoslovakia. From 1948 until 1989 Czechoslovakia was ruled by a Soviet-style Communist regime. In 1993 the country broke apart, and Slovakia and the Czech Republic became independent.

The Slovak landscape is noted primarily for its mountainous nature. Many of the country's mountains give way to rolling hills and river valleys, where agriculture, winemaking, and livestock raising are practiced. Southwestern Slovakia is dominated by the Danubian Lowlands, a fertile region that extends to the Danube River on the Hungarian border. Much of the country's agriculture is produced in this area; Bratislava is its main industrial center. The Slovak climate lies between the temperate and continental climate zones with relatively warm summers and cold, cloudy and humid winters.

The average population of Slovakia is currently around 5.4 million. Since the numerous population groups born during the post-war period and during the 1970-1980s have now reached productive age, the largest groups of population are 20–34 year old and 45-54 year old persons. Forecasts of the Slovak Ministry of Labour for the years 2005 - 2010 predicted a significant increase (approx. by 1/3) of the population in the age group 55 - 64 years. On the other hand, only a minor increase is expected in the age group between 25 - 54 years.

The Slovak economy is considered to be a tiger economy, which has transformed from a centrally planned to a market-driven economy. Slovakia's has recently been characterized by sustained high economic growth. In 2006, Slovakia achieved the highest growth of GDP (8.9%) among the members of OECD. The annual GDP growth in 2007 was estimated at 10.4% with a record level of 14.3% reached in the fourth quarter. According to EUROSTAT data, Slovak GDP per capita at purchasing power parity was $22,600 in 2008, which is 70% of the EU average.

Unemployment, peaking at 19.2% at the end of 1999, decreased to 7.51% in October 2008 according to the Statistical Office of the Slovak Republic. In addition to economic growth, migration of workers to other EU countries also contributed to this reduction.

Slovakia has been an EU member state since 2004 and adopted the euro currency at the beginning of 2009 as the 16th member of the Eurozone. The euro in Slovakia was approved by the European commission on 7 May 2008. The Slovak crown was revalued on 28 May 2008 to 30.126 for 1 euro, which was also the exchange rate for the euro.

Slovakia is an attractive country for foreign investors mainly because of its low wages, low tax rates and well educated labour force. In recent years, Slovakia has been pursuing a policy of encouraging foreign investment. FDI inflow grew more than 600% from 2000 and cumulatively reached an all-time high of $17.3 billion USD in 2006, or around $22,000 per capita by the end of 2008.

Despite a sufficient number of researchers and a solid secondary educational system, Slovakia, along with other post-communist countries, still faces many challenges in the field of the knowledge economy.

The business and public research and development expenditures are well below the EU average. The Programme for International Student Assessment, coordinated by the OECD, currently ranks Slovak secondary education as the 30th in the world (placing it just below the United States and just above Spain). Slovakia's International rankings are:

- Human Development Index 2007: Rank 42nd out of 177 countries
- Index of Economic Freedom 2008: Rank 35th out of 157 countries
- Global Competitiveness Report 2008-2009: Rank 46th out of 157 countries
- Corruption Perceptions Index 2008: 52nd out of 180 countries
- Democracy Index 2008: Rank 44th out of 167 countries
- Global Peace Index 2008: Rank 20th out of 140 countries

EDUCATIONAL SYSTEM

Education has very long tradition in the territory of contemporary Slovakia. Its development can be traced to the ninth century when Christian missionaries St. Constantin and St. Method established here the first schools. The first university, Academia Istropolitana, was established in Bratislava, today's capital of Slovakia, in 1465.

The educational system continued to develop within the framework of the Habsburg Empire. After 1918, secondary and higher education developed considerably and compulsory schooling was extended up to 8 years. After World War II the school system became identified with the principles of Marxism-Leninism, and eventually turned into a uniform, conforming and particularly ideological institution.

Though younger Slovaks have grown up under a Communist educational system, the system was based on historical roots of German and Dutch educational systems and the Slovaks are still among the best-educated people in the world, with 63% having completed secondary school (The educational system of the Slovak Republic, Fullbright Comission).

Education is compulsory from ages 6 to 16 and is fully funded by the state at all levels. Church and private schools have augmented a spectrum of state schools and they receive subsidies from the state. The literacy rate is almost 99%. As education is one of the most important areas in today's fast moving world, it must follow the needs of society. This is the main reason why the

Slovak Government pays long-term attention to reforms in education. The main goal of the reforms was to transform the traditional schools into a modern school system for the 21st century, which works with other components of the lifelong learning system to prepare and continue preparing people for life and work in new conditions.

The preparation of implementation of this reform is based on the National Program of Training and Education in the Slovak Republic-Millenium, approved by the Government in 2001. After the public administration reform in the country the administration and financing of all type of education is decentralized. But essential reform of education is the reform of its contents.

Regional Institutions of Education
Local and municipal governments are authorized to:

- Establishing and abolishing pre-school educational establishments, primary schools, primary art schools, school clubs of all types, leisure activity centers, school kitchens and cantinas, primary school language centers;
- Appointing and removing directors of schools and educational establishments;
- Supervising compulsory attendance at primary schools;
- Supervising economic management of schools and their handling of financial and material assets;
- Allocating funds for private and church schools and establishments and supervising the use of money;
- Approving contracts on school buildings and space.

The system includes the following components:

Pre-school Education is composed of nurseries and kindergartens assigned for children from 3 to 6 years of age. The Ministry of Health manages them and their main function in addition to caring for children is preparation for primary school.

Elementary schools provide general, ethical, esthetic polytechnic, health, and environmental education, physical training and religious education. Elementary education lasts for 9 years and the curricula vary mainly in the higher grades.

Secondary education is comprised of three types of secondary schools: gymnasium, secondary specialized school and secondary vocational school. The applicants must pass selective exams for all types of secondary schools.

Institutions of Higher Education is belongs to The Act on Higher Education (the Act of the National Council of the Slovak Republic No. 131/2002 of Law Code on Higher Education and on Change and Supplement to Some Acts) defines the institutions of higher education as legal entities, providing education and research in the Slovak Republic. According the character and amount of activities they can be divided into **university type** institutions, providing education up to the PhD. study, and **non-university type** institutions, providing education up to the Bachelor's level.

There are the three types of institutions of higher education in the Slovak Republic:

Public Institution of higher education legally established according the Act on Higher Education. The bodies of the academic autonomy of the institutions are the Academic Senate, the Rector, The Scientific Council and the Disciplinary Commission. They decide on the organization, activities and administration of the institution.

State Institution of higher education, established through the Ministries of the Slovak government. The respective Ministry sets the rules for the types of study, administering the financial means, regulating the number of students, the employees etc. supervised by respective Ministry as:

- police institutions of higher education (established and supervised by the Ministry of Interior)
- military institutions for higher education (established and supervised by the Ministry of Defense)
- health care institutions of higher education (established and supervised by the Ministry of Health).

Private Institutions of Higher Education, established by non-government institutions or founders, but the providing of education and research must be approved by the Ministry of Education. The approval is based on the approval of the Accreditation Commission or the administration and operation of the institution would harm the laws or regulations of the country.

Financing of Institutions of Higher Education

The Public and State Institutions of Higher Education are financed mainly form the state budget. The finances are transferred to the institution through the budget of the Ministry of Education as grants or subsidies for the administration of established by law, financed through state donations, independently managing property and financial means. State Institutions of higher education are established through respective Ministry, financed from the state budget, without own property and financial means. They are directly supervised by respective Ministries. Private Institutions of Higher Education secure its own financial means. Based on the approval of the government and the representation of the institutions of higher education award partial grants for development of accredited programs, research, and the development of the institution. The Ministry also supports the social aid for the students.

Tuition and Fees connected with the Study

The base amount for establishing the tuition and fees connected with the study on a public institution of higher education are 10% from the average amount of all expenses given by the Ministry of Education to the public institutions from the state budged, based on the allocation from the previous fiscal year. The students can study free of charge on the first, second or third level in case they do not exceed the standard amount of necessary for accomplishment of the respective level. In case the student will exceed the necessary time, he will pay the total of 5-times of the base amount.

There are several regulations defining the payment of tuition and fees for foreigners studying at institutions according bi-national agreements, for self paid students. There are several types of fees that the institution can charge for certain services provided to the students (copies of documents etc.) The rector can decide on the terms and the waiver of tuition and fees due to social, health or other conditions. The tuition and fees connected with the study at a private institution of higher education are defined by the respective institution.

DISTANCE EDUCATION

Since 1994 Slovak Republic applies distance education at higher education institutions. In a multi-country Phare project (1994-1999) which had two phases five different local centres of distance education (DE) have been established within this project at the following Slovak universities: Slovak

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University of Technology in Bratislava, Technical University in Zvolen, Technical University in Kosice, Slovak University of Agriculture in Nitra, and University of Zilina. All of these centres were coordinated by the Slovak National Distance Education Centre based in Bratislava at the Slovak University of Technology. After the end of the Phare project the centres tried to cooperate and establish a solid base for DE provision. Most of them concentrated on provision of DE courses within further education. Only following three of these centres have participated actively in the provision of DE university graduate courses at their home universities (University in Zvolen, Zilina, and Bratislava).

Nowadays approximately 100 students study graduate program at the Slovak University of Technology (study programm Electrical Engineering), approximately 250 students at the Technical University in Zvolen (study branch Corporate Management), 60 students of bachelor study at the Technical University of Kosice (study programm Geotourism). All of the above mentioned centres provide life-long education (mostly short term) courses in DE form. The number of students varies. Due to these facts, the importance of distance education, as the precursor of eLearning, for adult education in Slovakia is still very arguable (Arneberg P., Keegan D.The provision of eLearning in the EU).

INFORMATION AND COMMUNICATIONS TECHNOLOGY-ICT

Information and communication technologies (ICT) has proven to be a key enabler of socioeconomic progress and development, enhancing productivity and therefore economic growth, reducing poverty and improving living standards in many ways. ICT is increasingly revolutionizing production processes, access to markets, and information sources together with social interactions. ICT also has an impact on government efficiency, fostering transparency and better communication and services with and to citizens.

While the ICT sector in Slovakia has been a source of growth in recent years, notably due to foreign investment, there remains a sizeable challenge in terms of improving access to and take up of ICT technologies if a fully inclusive information society is to be achieved. Indeed, Slovakia is ranked in 43rd position, out of 134 countries, in the 2008-2009 Networked Readiness Index (NRI), which measures the degree of preparation of a nation or community to participate in and benefit from ICT developments (The Global Information Technology Report 2008-2009).

In terms of the broader information society, there remain important regional differences in personal computer and internet penetration rates and Slovakia remains a laggard in terms of public internet access points.

Pricing policies appear to be one major impediment to a greater access for the general public along with low broadband access rates for both households and enterprises.

In this respect, on 13 April 2005, the government approved a National Strategy for Broadband Connection in the Slovak Republic, which aims to reach the level of leading European countries in terms of broadband availability and penetration in the next 5 to 8 years. Identified priorities include local loop unbundling in the fixed line market, effective use of national frequency spectrum and wider use of the state-owned communication infrastructure.

Slovakia has an overall low level of connectivity, but Slovak citizens are active Internet users within the limits set by the infrastructure. Household take-up of broadband and overall Internet connectivity is among the lowest in Europe. Usage levels are higher than the connectivity would imply, and not far from EU average. Reading news and magazines online is particularly popular.

This can partly be explained with the high frequency of Internet use outside the homes, at Public Internet Access Places, in schools and at work. Despite the popularity of music and games downloads, the low broadband penetration does not permit the development of a commercial market for online content. Digital television is in its infancy as well.

Table 1.
Internet access by households (%)

	Internet access			Broadband		
	2006	2007	2008	2006	2007	2008
EU27*	49	54	60	30	42	48
Slovakia	27	46	58	11	27	35

The development of the Information Society is one of the policy priorities of Slovakia.

Table 2. Activities carried out on the internet (private purposes, (%) of all individuals), 2008

	Travel and accommodation services	Internet banking	Interacting with public authorities	Reading online news, newspapers or magazines	Ordering goods or services	Looking for job/sending application
EU27*	32	29	28	26	25	13
Slovakia	29	24	30	34	13	13

* Excludes Belgium (data were not available)

Source: Eurostat news releases on the Internet: http://ec.europa.eu/eurostat

- *Government:* The Central Public Administration Portal was put into limited operation; electronic procurement systems and electronic signature projects have been furthered; several studies on future ICT measures have been prepared (including a system for electronic data exchange among registers, a personal embedded chip ID cards and free access to the land register). eGovernment services are not yet widely available online in Slovakia but citizens and enterprises use of basic services is above the EU average and close to average for advanced services. Enterprise service use has grown especially fast. Availability of broadband and computers in school are low but teachers use computers for teaching more than availability would imply. ICT skill levels among employees are unequal: For expert skills, Slovakia is above EU average whereas basic user skill levels are among the lowest in Europe.

Connectivity among enterprises is slightly better than in households but at the low end of the European scale. Enterprise use of eBusiness applications and eCommerce is low, with the exception of eSignatures.

- *Digital Literacy:* ICT issues are being included in the curricula at all levels of education, teachers have been given training on the use of ICT in the educational process and schools were provided with some necessary infrastructure. To promote digital literacy the "Stur's Movement" project has funded ICT training for local communities.
- *eBusiness:* some legislative actions were undertaken to support electronic commerce and developments in electronic communications.

Key challenges for developing ICT

- Investigate the potential for supporting programmes of support for ICT development involving large foreign investment firms, smaller local ICT companies and leading research teams;
- Multiply the number of public internet access points to overcome cost related impediments to the information society;
- Pursue the implementation of the national broadband strategy.

eLEARNING AND ICT INTEGRATION

The area of eLearning belongs to the responsibility of the following institutions:

- the Ministry of Transport, Posts and Telecommunications, as an integral part of its responsibility for the Information society-valid only until January 2007,
- the Ministry of Finance, as an integral part of its responsibility for the Information society-valid since February 2007,
- the Ministry of Education (general responsibility for education including life-long education and training).

Since November 2004, the Government has appointed the *Plenipotentiary for the InformationSociety* as an advisory body to coordinate tasks in the area of the Information Society. In the area of eLearning-the Plenipotentiary plays an important role in necessary supporting activities and can influence the intersectoral coordination or discussion of relevant problems. There has been no specific Government policy document directly dealing with the eLearning area adopted yet. However, there are two main policy documents: Government Program Declaration and National Information Society Policy that define Government's policy on eLearning.

After the general election in June 2006, the new Government and Parliament adopted the Government priorities for the period 2006-2010.

Current Policies Dealing With eLearning

- *Millennium - National Policy for Education and Training (2000) - s*trategy for the implementation of the Bologna Declaration principles was established by the Program document Concept of the Further Development of Higher Education in Slovakia for the 21st Century, which was approved by the Government of the Slovak Republic in August 2000. In November 2003 and December 2004 the amendments to this Act were adopted to regulate some areas significant from the point of view of European Union law, particularly the adaptation of the content of education in higher education institutions according to the respective directives of the European Commission.
- *National Information Society Policy (2001)* - the former Government has adopted the National Information Society Policy document, which indicated, in one priority (education), the necessity to give attention to modern teaching methods including eLearning in the future. The document did not specifically deal with eLearning activities.
- *Government Program Declaration (August 2006)* - after the general election in June 2006, the new Government and Parliament adopted the Government priorities for the period 2006-2010. The Document presents the new Government's vision in eight specific areas (e.g. information society, employment policy, education).

Current strategies dealing with eLearning

- Training Strategy in Civil Service (2003),
- Sectoral Operational Program - Human Resources (2003),
- National Information Society Strategy (2004),
- The Strategy of Competitiveness until 2010 (National Lisbon Strategy) adopted by the former Government in February 2005,
- National Concept for Further Education (2002),
- National Strategy for Lifelong Learning (April 2007),
- The National Strategic Reference Framework (adopted in December 2006) for Structural Funds programming 2007-2013.

Current action Plans Dealing With eLearning

- National Information Society Action Plan (2004)
- Action Plan for Information Society of the National Lisbon Strategy (July 2005)
- Action Plan for Education and Employment of the National Lisbon Strategy (July 2005).

At present, in Slovakia the main positive impact of eLearning on the education system can be seen in tertiary education, which is characterized by the highest level of eLearning projects already implemented. A gradual positive impact can be observed also in training at workplace by big companies and in the lifelong learning system provided by universities. Currently, most interest seems to be in courses that are internationally certified.

Universities, some private education institutions and large enterprises (mainly with foreign investments) are the most active in the development of eLearning services in Slovakia. Public administration, primary and secondary schools and SMEs are still lagging behind. However, universities fall behind in eLearning content management, since human resources in this area require heavy funding, which cannot be covered by grants and state subsidies in many cases (Massy J., The eLearning industry and market in Europe)

Table 3.
Achievments and shortcomings in eLearning in Slovakia

eLearning	Main achievments	Main shortcomings
Areas covered	• Availability of CDs, DVDs, Video cassettes and Multimedia for eLearning in the market • LMS systems are frequently used • SES (Smart Enterprise Suites) are availabl	• Level of multimedia technology used at primary and secondary schools • Digital literacy is low • Low LCMS systems usage
Content	Availability of following services in Slovak market:	• Insufficient offer of topics

	• foreign language courses in eLearning form (some free of charge) • natural science (physics, chemistry, etc.) • health-care trainings and fire protection at workplace trainings • IT topics (ECDL, CNAP) • specific topics taught by universities or training institutions in eLearning from	for education and training of adults, unemployed and specific target groups • free eLearning courses usually prove only basic skills and knowledge
Interactivity	Availability of following services in Slovak market: • products for self-education • distance learning	• uniform access with same standard and quality for all participants without special features for gifted students
Usage in different target groups	Availability of services for • employed people (large companies) • students (higher education and lifelong training) • business sector	Unsatisfactory usage of eLearning by • the unemployed • inactive population • SMEs • majority of primary and secondary schools
ICT infrastructure	• multimedia technology is regularly used at universities and training centres • computer access rates for enterprises are high • computer penetration in training institutions is very high • increasing purchases of new PCs and especially branded PCs • SANET infrastructure for universities is at	• percentage of primary school teachers using PCs for education still low • computer penetration rates for primary and secondary

	place • solid broadband penetration for training institutions	schools still low • multimedia technology not used by 70% of primary and secondary schools • computer access rates for households still low • broadband penetration at primary and secondary schools still low • household broadband penetration still very low (compared to EU25 average)

Source: eLearning country report for Slovakia Tomas Sabol, Faculty of Electrical Engineering and Informatics, Technical University of Kosice, Slovak Republic http://www.euser-eu.org/ShowCase.asp?CaseTitleID=606&CaseID=1244&MenuID=109

CASE STUDIES

Main eLearning actors in the Slovak Republic

The most significant eLearning projects in non-commercial sector were initiated and provided mainly by these institutions:

- Universities,
- State Institute of Information and Prognoses on Education,
- Non-Government organizations,
- Private sector.

In private sector there can be found the following companies being significant in providing trainings through eLearning:

- CISCO Slovakia s.r.o. –eLearning on ICT topics (certified courses) only,34

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- EL&T, s.r.o., Bratislava –different kind of eLearning topics,
- ELFA s.r.o. –different kinds of eLearning topics,35
- Novitech Partner a.s.–project TeleDom–different kinds of eLearning topics (management,
- marketing, finance, project management).

The most active actors in training institutions using eLearning in the training of relevant target groups are as follows:

- CNAP (CISCO Networking Academy Program),
- Institute of Lifelong Learning (ICV) of Slovak Technical University in Bratislava,
- Academy of Education (Akademia vzdelavania),
- Slovak Society for Computer Science (civic association)–ECDL trainings coordinator and
- methodology centre in Slovakia.

The most active business companies using eLearning in the training of their own employees based on reports in the media are as follows:

- Slovnaft (oil company –MOL subsidiary company),
- Slovak Telekom and T-Mobile (Deutsche Telekom group),
- Orange Slovakia (Orange group –mobile operator),
- Matador Puchov (tyre manufacturer),
- ESET (Slovak private SW company–antivirus software producer well known worldwide),
- banks (mainly with foreign capital)-e.g. Slovenska sporitelna (Erste Bank group),
- a few alternative telecom operators,
- national and regional energy distribution companies (e.g. SPP – monopoly gas distributor).

Government plans to use eLearning as an important training method in trainings of unemployed people and physically disadvantaged people (by calls for Specific Structural Fund Operational Programs–in the areas of Human Resources, Training, and Education).

Usage of eLearning is limited by low digital literacy currently reachable by the mentioned target groups. eLearning courses for the unemployed and disadvantaged are managed by local Labour Offices located in each district.

Current projects including eLearning

- *CNAP (CISCO Networking Academy Program, 2001)* - it can be regarded as one of the Ministry of Education's most important activities in the field of eLearning. The project is very popular among students, secondary schools, universities and the private sector (ICT companies mainly). The project offers excellent possibilities for secondary and tertiary education students as well as employed people to be trained in high-tech IT by eLearning methods.
- *INFOVEK Project (within the State Institute of Information and Prognoses on Education)* - the INFOVEK project is one of the most effective projects managed by public administration in the area of eLearning. The aim was to provide all primary and secondary schools within four to five years with computer classrooms of about ten computers and an Internet connection in each. There are training programs being organised for INFOVEK teachers and a centralised purchasing of hardware for the selected schools. One of the four pillars of this project was to equip every primary and secondary school (public, church or private) in Slovakia with a multimedia classroom with high quality Internet access.
- *DIGISTUR Project* - the project is a successor of the INFOVEK project idea. It is trying to involve the majority of schools participating in the INFOVEK project in wider ICT training activities for citizens in the whole territory of Slovakia.
- *eLearning projects implemented by universities* - during 2005-2006, the majority of universities have actively worked on the implementation of eLearning for their own students and successfully developed eLearning portals.
- *ECDL* - the initial objective of the former Slovak Government was to make all civil servants pass the tests until the end of 2008. From January 2007 on, there will no longer be compulsory ECDL (European Computer Driving Licence) tests for civil servants in Slovakia. The arguments in favour of the current decision say that most of the civil servants are already computer literate and that there would be preselected companies to make a profit from those courses.
- *DILBAC project (2004-2006)* - the project was financed by the European Union under the Leonardo da Vinci Program. The aim of the project was preparation of eLearning modules in the area of banking and accounting in the four participating countries. Cooperation between the academic institutions and institutions from

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practice laid a realistic basis for meeting project objectives. The beneficiaries of offered courses were students and interested people from practice. The outputs included survey of eLearning needs in banks and enterprises, elaboration of curricula that take into account working needs and the creation of education modules, command of eLearning methodology, the establishment of a virtual library under the DILBAC project.

- *Tomorrow is Today* - the Slovak Telekom eLearning project "eLearning – Tomorrow is Today" won the 6th annual competition Slovak HR Oscar in 2006. The aim of the project was to create a learning system to enable coherent learning management, focused on supporting strategic tasks and corporate objectives in the times of transformation.

- *VUDU eLearning Project (Virtual University of Drama Art)* - since September 2006, the Theatre Science Department at the Drama Faculty of the Academy of Music and Dramatic Arts in Bratislava has implemented its initial eLearning project in collaboration with the European Cultural Society, drawing a grant from the European Social Fund. For theatre science and drama students, five courses dealing with the world and Slovak theatre of the 20th century were organised. The eLearning Courses in the form of learning texts, assignments, tests and visual materials were distributed via the Internet.

- *School for Young Rescuers* - since September 2005, the Rescue Team Slovakia civic association, focusing mainly on voluntary rescue services, has been carrying out the learning project "School for Young Rescuers". This preemptive eLearning project was designed to enable all pupils, students and even teachers, parents and ordinary citizens to acquire and renew their knowledge in the area of prevention, health- and lifesaving, first aid and emergency aid. Several eLearning courses were realized to date, all of them being systematically divided into units covering child injury prevention, traffic education, first aid, health- and lifesaving in dangerous situations and the survival in such instances.

- *DIVES Program* - the civic association The House of Europe, prepared for the period of March 2005 - March 2007 the DIVES Program (Distance Learning Via Internet), which should have contributed to eliminating discrimination and inequality in the labour market. It was designed for secondary school and university graduates, mothers on maternity leave, the long-term unemployed,

people over the age of 50, employees of non-profit organisations as well as for disabled people. The courses were free of charge and their purpose was to find a job. Project participants had a choice of nine courses. The most favourite course was the English language course, since many consider it as the best start to get a better job. Other favourite courses were project management, regional policy and EU structural funds. Participants can also choose to attend entrepreneurial, self-Government and public administration, civil society, community development courses as well as volunteering or international political development courses. All nine courses received the accreditation from the Ministry of Education. Successful course graduates received a certificate.

- *Internet for Education* - the project has started in June 2006, based on the MINERVA Action Plan for Information Society aiming to support the wider usage of broadband by the young generation in Slovakia. The project offers the possibility to receive a 2-year limited financial subsidy from the state (approx. 8 EUR per month) for the establishment of a new broadband connection at home. Up to 40 thousand young people (aged 15-25, in October 2006 the age limit was cancelled) can participate, 5 thousand people in each of 8 Slovak regions. Broadband access should be faster than 512 kbps/256 kbps. The integral part of this project also rests on eLearning in that it supports education of project beneficiaries in foreign languages and ICT skills.

The list of above-mentioned projects is not exhaustive, however these projects are worth mentioning in this report because of the speed of their implementation, innovative character or their originality.

RESEARCH AND EVALUATION

The following positive features and trends were observed in Slovakia in the area of eLearning:

In the Field of Education
- blended learning is regularly used for many years,
- INFOVEK activities (coordination, trainings for teachers and students) were developed,
- implementation of specific eLearning pilot projects,

- private initiatives like a Slovak Telekom project supported higher computer penetration at school facilities,
- specific eLearning products (e-Economy) are available, several secondary school projects were implemented,
- multimedia technology and eLearning courses are regularly used in universities,
- SANET activities created technological infrastructure support for eLearning services,
- since 1997 there has been CNAP (Cisco Networking Academy Program) implemented,
- several specific university eLearning projects were implemented (e.g. VUDU project),
- financing from EU funds was available also for eLearning,
- newer multimedia technology available at the majority of schools.

In training at the Workplace
- multimedia technology is regularly used,
- eLearning for trainings at the workplace are regularly implemented by big companies (Slovak Telekom, banks, etc.),
- few domestic eLearning products on CDs, DVDs and Internet designed for training and education can be used in the training of specific target groups,
- CNAP-Cisco Networking Academy Program- trainings are available
- eLearning started to be an important training method for civil servants, several eLearning projects were implemented by central state administration institutions (eJustice, ECDL),
- several eLearning projects organised by regional self-Government administrations were already implemented (e.g. a regional self-Government eLearning project for the region of Zilina, a specialised Virtual Academy project prepared by the regional self-Government for the region of Bratislava),
- specific international cooperative eLearning projects (e.g. DILBAC – the banking sector in cooperation with universities),
- Multimedia technology is regularly used for teaching,

In Life Long Learning
- the National Centre of Distance Education was established in 1996,
- the national life-long learning strategy and life-long learning guidance were adopted by the Ministry of Education (in 2006 and 2007),

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- several universities have established lifelong training centres,
- multimedia technology is regularly used at training centres,
- government initiatives, such as the DIGISTUR Project, support development of ICT literacy by citizens,
- the structure of eLearning products on CDs and DVDs for education and training is well developed (mainly foreign products, e.g. Czech eLearning products on CDs and DVDs can be also used by at least 42% of Slovak citizens aged 15+),
- few domestic eLearning products on CDs, DVDs and Internet designed for training and education can be used in the training of specific target groups (lifelong learning, at home),
- several educational institutions started to provide eLearning courses, e.g.: City University Bratislava (business programs), Transfer Slovakia (management, marketing, engineering),
- Academia Istropolitana Nova (postgraduate studies in economics, architecture, environmental policy, European studies, English language), Akademia vzdelavania (language, professional and spare time courses), Verlag Dashofer (IT skills, practical economy courses),
- few free of charge English training eLearning courses are available,
- the Government supports eLearning as an important method for the training of unemployed people and specifically disabled groups of people (SOP 2007-2013),
- several NGO eLearning projects (e.g. School for Young Rescuers, DIVES project) were already implemented,
- rapid foreign language skills development by youth creates a great potential for use of foreign eLearning products.

In Slovakia in the area of eLearning the following **negative features** were observed:

In the Field of Education

- the information society framework is lagging behind the EU level (institutional, legal, financing matters),
- there is absence of the National eLearning Strategy, eLearning coordination at the national level, and database of existing eLearning products designed for education and training.
- multimedia technology is not properly used in a large scale of schools,

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- inadequate financing of schools and HEIs causes the absence of modern/expensive latest eLearning systems at the majority of universities,
- generally poor skills in eLearning content development at universities,
- existing eLearning activities are very fragmented,
- ICT literacy at the general level is less developed than the EU25 average.

In training at the Workplace
- poor implementation of eLearning by SMEs.

In Life Long Learning
- insufficient legislation for life-long learning,
- an inadequate portfolio of domestic eLearning products designed for training and education on CDs, DVDs and Internet are available.

CONCLUSION

At present, in Slovakia the main positive impact of eLearning on the education system can be seen only in tertiary education, which is characterised by the highest level of eLearning projects already implemented. A gradual positive impact can be observed also in training at workplace by big companies and in the lifelong learning system provided by universities.

eLearning is gradually included in strategic Governmental documents (National Lisbon Strategy, education-related documents, etc.) as a significant and promising tool for the further development of education systems in Slovakia for all target groups.

Generally, available statistical data indicates that the supply of eLearning in Slovakia is currently not well developed. Potential demand seems to exist, although there is no statistical data available which could demonstrate its extent.

Currently, most interest seems to be in courses that are internationally certified. Universities, some private education institutions and large enterprises (mainly with foreign investments) are the most active in the development of eLearning services in Slovakia.

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Public administration, primary and secondary schools and SMEs are still lagging behind. However, universities fall behind in eLearning content management, since human resources in this area require heavy funding, which cannot be covered by grants and state subsidies in many cases.

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ADDITIONAL READINGS

The project Megatrends in eLearning Provision has produced four main reports. As noted in the introduction to the most recent one: The first book, The Provision of eLearning in the European Union (PDF - 98 pages) (ISBN 978 82 562 68177) presents data gathered from Norway and the 25 members of the European Union as an introductory overview of the provision of eLearning in Europe.

The second book, Megaproviders of eLearning in Europe (PDF - 212 pages) (ISBN 978 82 562 88184), includes 26 case study articles of European megaproviders of eLearning.

The third book, eLearning initiatives that did not reach targeted goals (PDF - 104 pages) (ISBN 978 82 562 68276), provides case study articles and analyses of nine prestigious European eLearning initiatives that did not reach their targeted goals.

The fourth book, Analyses of European megaproviders of eLearning (PDF - 152 pages) (ISBN 978 82 562 68191), presents important success factors identified by the in-depth analyses of both the megaproviders and the discontinued initiatives identified in the project.

All four books, a comprehensive bibliography and a set of recommendations can be downloaded from the http://www.nettskolen.com/in_english/megatrends

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Alena Ilavska since 1989 she has been teaching at the Technical University in Zvolen. She started her teaching activities as a teacher of Philosophy and taught graduate and postgraduate students as well as being responsible for lectures and seminars. Later on when the Faculty of Ecology was founded she also started to teach Ecophilosophy, History of Arts and Esthetical Aspects of Relation Man and Nature. She completed her PhD. degree at the Department of Sociology at Comenius University enabled her to include the new subject – Sociology and Business Psychology into her syllabus. She has been teaching 15 years as from 1989 and since 1994 have been director of Local Center for Distance Education. She also has been teaching abroad within the framework Erasmus Socrates Program and within the framework Telematic Management which is Master study Program of Donnau Universität Krems for 4 years. Her subject is Social Impact of ICT on Social Sphere. After the successful competition of tenders she won the position of director for Local Center of Distance Education in 1994. She was a member of a working group responsible for creation of methodology of distance and flexible learning. She has been teaching Sociology and Business Psychology at the Center for the students of Distance Education. She is responsible for the methodology and for preparation of study materials and for the implementation new ICT tools into the education system.

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CHAPTER-34

eLEARNING IN SLOVENIA

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ABSTRACT

The author wants to point out in this chapter that Slovenia as a small country with nice, still well preserved nature needs to develop especially intensively its knowledge pool because it has no important natural resources like coal, gas etc. but it has already well educated people who need to stay update with their knowledge also in the future and of course the young generations need to obtain the best education possible. As it will be shown later on, the funding for education in Slovenia is sometimes more intensive, sometimes less intensive and especially in less intensive periods the e-learning becomes even more important since online or computer (internet) aided learning is the cheapest and most "democratic" learning. I grew up in times before computers and so I feel the revolutional importance of improvement the computer-aided learning offers now.

So in this chapter we illustrate the status of ICT and e-learning in Slovenia and in conclusion the author shows his personal opinion which as all written in this chapter might not reflect the official Slovenia opinion.

COUNTRY

Slovenia is one of the smallest European countries and has 2 million inhabitants. It is open to the neighboring countries and lies on the crossroads between West and East Europe (e.g. Barcelona- Kiev highway) and South and North Europe (e.g. Athens-Hamburg highway) Slovenians traditionally speak foreign languages (mostly English, German and Croatian, on the borders also Italian and Hungarian).

Already in Yugoslavia (Slovenia was a part of the former Yugoslavia and became independent in 1991) there was a lot of interest for the

computerization in Slovenia. So at the end of the last century the computerization and e-learning in Slovenia was above the European average. However in the last years this development has run more slowly and now the e-learning status in Slovenia is around the Europe average.

Slovenia is a rather small country of Europe. It has only 2 million inhabitants. Slovenia's GDP/per capita reached 88% of the EU27 average in 2006 (Eurostat). Slovenia has had one of the sharpest declines in birth rates in Europe, but my wife who is a pediatric says this situation is improving in the last years. The Population is (in 1,000): 2,002 inhabitants (2006) and Slovenia is 20,273 km2. Ljubljana is t he capital of Slovenia. The languages are speaking Slovenian; Italian and Hungarian in some areas. Euro is using since 1.1.2007.vGDP at market prices is €26,146.3 million (2004) and GDP per inhabitant in PPS (purchasing power standards) is €17,600 in 2004. (Vasja Vehovar http://ftp.jrc.es/EURdoc/JRC45496.pdf retrieved on Dec.1st 2009)

Figure 1.
A map of Slovenia

After becoming independent 1991, Slovenia has been growing into a rapidly developing country. It joined the NATO in 2003, acquired full membership

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in the European Union in 2004, adopted the euro (€) in 2007 and was holding the EU Presidency in 2008.

So one sees that Slovenia is a stable economy with relatively low unemployment and a country investing much into its educational system from the preschool children to the university sector. However, in 2009 due to the world economic crisis, the unemployment increases in Slovenia.

EDUCATION SYSTEM

The Slovenian education system consists of the following basic segments: pre-school education, basic education (single structure of primary and lower secondary education), (upper) secondary education (vocational and technical education, secondary general education), high vocational education, and higher education.

Other parts of the system include: adult education, music and dance education, special needs education, modified programmes and programmes in ethnically- and linguistically-mixed areas.

About half of the Slovenian companies practice some form of the e-learning to educate their workers. However, the workers naturally prefer live teaching if only possible. As the education in the companies needs to be formalized, then also live lectures with real teachers are a normal solution. But e-learning becomes handy when people need to improve their knowledge e.g. at home.

The Slovenian Constitution (Article 57) states that primary education is compulsory and funded from public sources. Is also says that the state should provide an environment which guarantees the citizens' real options for education, as well as the freedom to select one's preferred education.

The prevailing free and public form of formal education was already one of the advantages for the citizens retained from the previous (i.e. 'socialist') system of the previous Yugoslavia.

Slovenia has also preserved its culture and language, while the Slovenian language somehow now also complicates the e-learning process.

Basic education and most of the secondary education is financed by the state. High education is also free, the exception are some business schools. But the

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place on the universities is restricted so that (depending on their number) a considerable percentage of students are not accepted to the university at least without any money contribution.

Table 1
Educational attainment of the population aged 15 and above (%)

	1971	**1981**	**1991**	**2002**
No schooling and incomplete primary school	30	26	18	7
Primary school	41	33	30	26
Upper secondary school	26	35	43	54
Tertiary education	3	6	9	13
Total	100	100	100	100

(Source: Slovenia in Figures 2005,
Statistical Office of the Republic of Slovenia, p. 24, Census data)

Table 2
Comparison of Slovenia, EU15, NMS and EU25 regarding the five
European benchmarks in the field of education and training in percentages

Five European Benchmarks	**SI**	**EU15**	**NMS**	**EU25**	**Benchmark target 2010**
Youth education attainment level40	91	75	89 ***	78	85
Low-achieving 15-year-olds in reading41	- *	- *	- *	20 *	15.5 **
Lifelong learning42	15	11	5 ***	10	12.5
MST graduates43	9	14	8	12	15% increase by 2010
Early school leavers44	5	17	8	15	10

However many Slovenes do not believe the education obtained via on-line course is of the same quality as the traditional education. I do not agree with them and I think it is just a matter of time when they adapt to the new technology.

Although the percentage of students in Slovenia is approaching the leading countries in Europe, in the nationality -the "smaller" young generation growing up- is reaching these years the primary and secondary school. So teachers there receive less and less pupils.

Although schools know that this situation will improve again in the next years, the teachers fear for their status as long as the shortage of students is going to occur.

There was also a significant change in the primary school as its duration changed from 8 to 9 years. This happened because the young children enter the primary school now with the age of 6 years, not with 7 years as it was the case before. The religious education is currently excluded from the official state school, but this is hard debate all the time and could change in future.

Web The *Ministry of Education and Sport* is responsible for the development of school education regulations, as well as for the allocation of funds, the implementation of laws and administrative decisions related to pre-primary, primary, secondary schools, as well as high vocational education.

Local school councils play an important role in the process of administrative decentralization in primary and secondary education. Local authorities are also responsible for the administration and funding of pre-primary establishments and primary education establishments.

The regions have an ever more important role in establishing faculties, which are also funded by local resources. The plans for the future explicitly stimulate regional education centres. It is true that these new faculties and universities are more open to implementing eLearning. Another aspect where local levels have some impact is pre-school education and primary schools.

Formally, it is local communities that are establishing these organizations, they participate in appointing the principals and in part they also provide funding for them. They have, however, no impact on the curriculum but they can often do-contribute to the ICT equipment of schools.

Table 3.
Comparison of Slovenia, EU15, NMS (EU10) and EU25
with respect to selected indicators in education and training

	Slovenia	**EU15**	**NMS**	**EU25**
Population with completed secondary education31	80 %	66 %	84 %**	69 %
Population with tertiary education32	13 %	20 %	9 %	16 %
Public expenditure on education (% of GDP) 33	6.02 %	5.2 %	5.42 %	5.2 %
Private expenditure on education (% of GDP) 34	0.86 %	0.63 %	0.59 %	0.63 %

(Source: *Eurostat and other European sources*)

Students as already their name says, study. As we therefore needed to visit libraries before the internet era, now we all first try to find useful information on the web or on the memory units of our computer. It takes drastically less time and is drastically more effective. So e-learning is the standard routine with the students. In addition, most Slovenian universities have their LMS systems where students need to work obligatory and so of course they use them. So we can say that practically all students in Slovenia use e-learning. They also complain if professors do not offer their lectures online.

Table 4.
Children, pupils and students enrolled in education programmes in selected years (Source: Ministry of Education and Sport 2006)

	1980 /81	**1985 /86**	**1990/ 91**	**1995 /96**	**2000 /01**	**2003 /04***	**2004 /05**	**2005 /06**
Pre-school education	71,784	75,669	73,631	66,553	63,328	54,515	54,831	57,134
Basic education	217,806	225,789	225,640	193,914	181,594	177,535*	172,521	167,890
Secondary education	90,874	80,451	92,060	102,079	104,840	103,203	101,876	99,860
High vocational	-	-	-	-	4,760	11,099	12,621	14,246
Higher education**	27,707	29,601	33,565	45,951	82,812	87,205	91,229	92,204

Pre-school
Pre-school education includes children 1 - 5 years old and although it is not obligatory, more than half of all Slovene children attend it mainly because their parents work and cannot take care of children all the time. Theschooling program involves movement, language, art, nature, society and mathematics. Most pre-schools have also the computers, but the preschool e-learning is not a part of the curriculum.

Primary school
Primary education lasts nine years and starts when the child is six years old. There is an obligatory part of the curriculum and a freely adaptable part. The obligatory part consists of compulsory subjects covering science and art and activity days covering culture, science, sports and technology. There is assistance for children with special needs, remedial classes, additional classes, after-school care and other forms of care for pupils, interest activities and out-of-school classes. The primary education finishes typically at the age of 15. Computer education is a compulsory part of the curriculum in all primary schools

Secondary school
Slovenian secondary education curricula are variable. The basic and most popular is the general 4-year secondary school basically prepares pupils for further studies. It is called gymnasium ('Gimnazija'). It ends with 'matura', an external final examination like elsewhere in Euroipe. Then students enter the higher education programmes. nother estimate made by experts says that roughly around 20-30% of schools actually use computer laboratories not only for ICT courses but also for introducing eLearning and computer to other substantial subjects/courses.

Most frequently, this is informatics but we often also encounter geography, physics, chemistry and recently increasingly often languages. Here, we may repeat that almost all schools in Slovenia have computer labs and their own website; however, it is unclear to what extent they use it for on-line teaching contents. With respect to international comparisons we have already mentioned (in II.4 and II.5) the research performed in 2006144 for the European Commission, Information Society and Media Research.145

High Schools and University
Higher education is either university or more practically oriented the latter finishes with the final technical exam. The classical university typically lasts

four years, and then there is an additional year when students can finish all their exams and prepare the diploma, which is the final exam on the university. Because of the more and more difficult conditions on the labour market many students proceed further to the master's degree study and eventually the doctorate. Master's degree lasts about 2 years and the doctorate additional 2 years.

Finally the students hope to get a job, although the companies are sometimes reluctant to take the doctors because they typically have a higher formal degree of education than the CEO of such a company.

In Slovenia my personal impression is that it is difficult with knowledge because Slovenia is more trade oriented and not so much a think-tank country. here is also common a kind of rigid hierarchy which makes difficult for young experts to confront their ideas with the ones of colleagues that are higher in the hierarchy. It is good if educated students with doctorate go for some time abroad to work in a renowned scientific lab. When they return, they have better chances because in Slovenia people and knowledge from abroad are very much respected. All of the above is going to change with the introduction of the Bologna system that will be adopted according to the EU recommendations (i.e. the Bologna reforms).

In 2005 some universities started with the Bologna system. Full implementation has been postponed until 2015/16, which is the last year to graduate within the old programmes. Further changes are expected in higher education, predominantly in financing schemes for organizations, the government's role in managing public universities, the regulation of the status of researchers and high school teachers, stimulating the establishment of new -and particularly private- universities etc. Student status is also problematic, particularly their no-tuition right for regular involvement in public universities and their right to work on a tax-free basis through so-called Student Services. These all are very radical changes that lie ahead of the higher education sector.

Lifelong Learning
Lifeling education is very diverse in its curriculum. Institute for Adult Education reports that in 2006 there were more than 300 institutions offering 6,000 different adult education courses, comprising on average 40 hours and involving 280,000 participants.

The main providers are private education institutions (31.5%), followed by secondary schools 16.45%) and specific public institutions called 'Adult education centres' (12.3%). Various societies (5.5%), museums and galleries (3.9%) and general educational libraries (2.2%), which are increasingly incorporating adult education within their activities, are also involved.

A new law introducing a certification system was passed in 2000. It enables the assessment and verification of the vocation-related knowledge, skills and experience acquired from schools. It thus enables individuals to obtain a vocational qualification in ways other than through formal schooling. Candidates undergo a knowledge assessment procedure by a special commission to obtain a state approved certificate attesting to their competence in performing certain vocational tasks. Vocational qualifications obtained in this way can be used by their holders to find a job or in further training. The most traditional and well-known providers of adult education courses are the 'ljudske univerze' (adult education centre). More than 40 centres are active in Slovenia, carrying out the education of adults as their basic activity. The most popular are basic adult education, foreign languages, computer programmes, and work-related programmes on legal, financial and managerial topics.

The main barriers which keep adults from participating in lifelong learning in Slovenia are similar to those seen in other countries. For example, a lack of access to employer-provided training reduces the likelihood of participation, as does older age or unemployment. According to data issued by the Statistical Office of the Republic of Slovenia (2003), as much as two-thirds of the population did not take part in formal education or continuing education. Most of them stated a lack of interest as the reason for not participating.

The second reason for not taking part is a lack of time, which is most frequent in the age groups 25-54, followed by health reasons, too busy with work and family responsibilities. Citizens mention the cost of education courses or difficulty in reaching places of education much less often. The OECD study on the 'Literacy of Adults and their Participation in Education' by the Centre for Adult Education of Slovenia, (1998) found that 57% of all adult participants in education do so on their own initiative.71 This finding indicates that most individuals need to be personally motivated in order to participate in lifelong learning. On the other hand, the overall rate of participation in lifelong learning is considerably above the EU15 and EU25

averages, while it seems that companies provide limited learning (compared to the EU).

Slovenia is a typical average European country regarding its ICT indicators. The young generation uses the computers routinely and Slovenia has the highest share of the "very competent" in EU25 according to Eurostat survey on ICT among households 2006.Regarding the communication infrastructure (i.e. Internet and broadband access for schools, LAN, websites etc.), Slovenia is one of the most advanced in the EU (Empirica, 2006). Furthermore, all schools have computer laboratories. However, the PC ratio per 100 pupils is only 8 in Slovenia, what is for abou the 4 less as it is typically in Europe. The moodle platform prevails in Slovenia as the e-learning tool.

ICT AND E-LEARNING INFRASTRUCTURE IN SLOVENIA

E-learning is seems to be very popular in Slovenia especially in the young generation. One of the reasons might be that it is a transforming country where many people need to adapt their knowledge to the new needs of industry or other employers and the market. Slovenia needs to take care that its working force is competitive and well educated.

This situation is especially striking in the lower developed parts of Slovenia where also the computer literacy is lower. E-learning plays a very important role in overcoming such problems. E-learning so gives additional chances to the less developed regions in Slovenia by giving chances to those who want to learn more individually, with the help of the computer. In fact even the computer is not necessary any more. Smart mobile phones can be effective platforms for e-learning. It is possible to use Adobe software Flash (www.adobe.com retrieved on Dec.1st 2009) to author e-learning content for a number of mobile phone types. So one can develop or adapt a Flash e-learning application for the personal computer platform. This application is then adapted to a lower version of Flash action script that works with mobile phones and the project is simply exported to the mobile phone. We are convinced that in the future most of the e-learning will be used on mobile phones or similar hand held platforms since people want to use their spare time to learn and typically the "free" time occurs when one is travelling with train or bus or waiting or driving a car. When driving the car one can of course not use the visual display but instead listen to the sound only.

Learning foreign languages is the typical example. When authoring an interactive computer aided language learning course the author needs to provide parallel with the interactive also the non-interactive language teaching course as was in the time before the computers when we were learning from the audio cassettes.

In Slovenia we are producing the e-content on the web (http://www.mss.gov.si/si/delovna_podrocja/ikt_v_solstvu/e_gradiva see also http://www.mss.gov.si/si/delovna_podrocja/ikt_v_solstvu retrieved on December.1st 2009) for the whole spectrum of the nature and social sciences. In praxis this looks like this: There are tenders to where institutions can apply and get covered the working time for the work on the project. The results (e-learning content) are then published in Slovene language on the web and available for free to all.

The Slovene project e-schooling is supporting in the years 2008-2013 two (http://www.mss.gov.si/si/delovna_podrocja/ikt_v_solstvu/sredisce_za_e_solstvo retrieved on Dec.1st 2009) projects: First one educates Slovene teachers how to use e-learning along with the classical learning in schools. The second one is an advisory service for those who want to implement e-learning in their institutions.

E-learning process transforms the role of the pupil from the passive spectator in the classical classroom into the active player as the user of an e-learning platform. The role of the teacher changes from the knowledge dispatcher into the coordinator of the learning process. The learning process is no more restricted to the years of schooling, but lasts the whole life. The role of the traditional school system becomes on the other hand more dedicated to the evaluation of the knowledge acquired during the e-learning process.

Slovenia was one of the first European countries as it in 1993 established the fundamentals of the Information and Communication Technologies (ICT) in the Slovene educational sphere. It then defined three main topics of this activity:

Education of teachers, bringing hardware and software into the Slovene schools and of course developing and research on this area. In 1999 there was seen in Slovenia (like in other EU countries) the so called digital divide -the growing abyss between the teachers used to ICT and the ones not used to it.

From 1994 to 2005 there was performed in Slovenia more than 4300 seminars (lasting typically 3 days) where altogether around 54.000 slovene teachers improved their knowledge.

A very important initiative was the so called "Računalniško opismenjevanje" (computer literacy project) where also my first web portal was sponsored (www.bioanim.com retrieved on Dec.1st 2009), made in 1999 and written also in English. So encourage yourself to visit it! It was one of the first web virtual reality portals on the field of biology and it still lives quite well after being ten years online (and updated during this time). As I write this, it is the second one on Google unsponsored list if you type "cell tissue" into the Google search. The computer literacy project established many fundamentals for the modern ICT development in Slovenia.

For the pre-school children there were developed attractive applications combining playing with the educational powers of the computers. For the primary school children a more demanding computer technology was used, but still very much connected to the playing. In schools for children with special needs the dedicated hardware and software was implemented to suit their special needs. In the secondary schools there was encouraged more intensive approach to the use of the computer in the school, especially for those schools which are the only ones in Slovenia.

The computer literacy project also started the initiatives for the e-learning stimulating the use of computers in the living quarters of pupils and students. For example, there was enhanced the use and research of the computer aided technologies in education on the high school.

The computer literacy project also took care to educate the teachers-multiplicators who then transferred the knowledge to other people- teachers and pupils. The educational process was always tending to take place not far away from the location of the respective "target population". For the logistics took care the companies hired for this purpose and the prices for the workshops were kept as low as possible.

There were established two important portals in Slovenia at that time: The Slovene educational network (http://sio.edus.si retrieved on Dec.1st 2009) and the Slovene school network (www.eun.org retrieved on Dec.1st 2009). The Edus.si started in 1995 with the goal to connect together the servers with the educational contents.

Its initiative was to offer good technical platform for the educational portals and offer lots of educational material in the Slovene language. The school network Eun.org connects 27 school networks of Europe. It encourages the exchange of experience, offers a lot of educational material and establishes common educational standards, useful for all educational portals. There is a catalogue of Slovene educational software at (http://ro.zrsss.si/katalog.html retrieved on Dec.1st 2009)

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From the year 1993 Slovenia participates in the ICT projects like eTwinning, IEARN, Kidlink, ESP, Commenius, Socrates-Minerva and other projects. Regarding the e-learning there are four target populations of pupils: The ones who cannot attend the class for any reason, the ones who need additional support through e-learning, then education of teachers through e-learning and the education of adults generally (life-long learning). For the pupils who cannot attend the school the Slovene educational system established already in 1997 when the project of distance learning started.

Afterwards the amount of e-content slowly increased, but at that time there was no systematic approach for all the topics that are learned in the school. At that time the Slovene educational society was participating in several regular conferences like COLOS (modern education in Physics), MIRK (the principals+ conference) and the educational fairs.

The computer literacy project of Slovenia finished around the year 2000. Then it was for some time hard with the state financing of the ICT, now it is better due to the Europeas social funding that supports the Slovene initiatives. There was all the time taken care of bringing the modern and standardized equipment into the Slovene schools. It was in 2006 about 25.000 multimedia personal computers in the Slovene schools what meant around 12-13 pupils per one computer. The computers were typically collected in the so-called computer room or computer laboratory.

This is the case also nowadays. The good side here is that the equipment is nicely located at the same, safe location and every pupil works on his "own" computer when in this room, On the other hand, these computers can be used only by a fraction of the school pupils at the same time and the subject which are not so "technical" like social science or even biology are not so frequent guests in the "computer room". So the educational software for such subjects is not so frequently practiced, what is definitely not good. Again let me stress the importance of modern mobile phones – they are more powerful

computers that the PCs some years ago! And they are even forbidden in most Slovene schools instead of being used as the learning platforms!All the schools in Slovenia naturally use the legal computer software. There is taken care for the technical support online or through telephone (http://ro.zrsss.si/~nisisam retrieved on Dec.1st 2009) More than 90% of the 600 Slovene schools has a well working network connected to the internet. The main provider here is Arnes (www.arnes.si retrieved on Dec.1st 2009).

Research and development of ICT in Slovenia
Up to the year 2001 there were basic strategical initiatives like the following:
- CoLoS (conceptual teaching in natural sciences (http://colos1.fri.unilj.si/~colos/index_si.html retrieved on Dec.1st 2009)
  Internet as the support for learning and teaching – the Trubar project (http://www.educa.fmf.uni-lj.si/trubar retrieved on Dec.1st 2009)
  Expert educational system (http://lopes1.fov.uni-mb.si/Esi/esi.htm retrieved on Dec.1st 2009)
- Didactic approaches to e-learning (http://www.pfmb.uni-mb.si/ivan retrieved on Dec.1st 2009)
  The computer in the experimental work: http://www.e-prolab.com/comlab retrieved on Dec.1st 2009
- In the years 2002-2004 there were running projects which founded the further strategy of the Slovene e- educational system:
  The didactic approach to ICT at learning and teaching: http://www.pfmb.unimb. retrieved on Dec.1st 2009
- si/gerlic/crp retrieved on Dec.1st 2009
- ICT in schools: http://colos1.fri.uni-lj.si/~infor retrieved on Dec.1st 2009
- Distance learning in Slovenia: http://www.ltfe.org/crp retrieved on Dec.1st 2009
- At the same time there were also running the projects where educational software was developed for different subjects like chemistry, physics, special needs and smaller educational projects where internet e-content was produced – more that 300 products: (http://ro.zrsss.si/projekti.htm retrieved on Dec.1st 2009)

The teachers were educated on the following fields:

- the informational skills
- scoring the e-content

- teamwork in leading the modern ICT school
- building of the profile of the ICT expert
- using the internet classroom
- Using the e-content for specific topics like the language learning.

Basics for e-learning postulate of course the basic knowledge of computers and internet as well as having the necessary hardware and fast enough internet connection. The only shortage here is the fast internet connection not so much for schools and companies, but sometimes for households located out of cities. There is all OK in urban centers where fast (optic) cables are everywhere as well as UMTS wireless connections. However, Slovenia has also many mountains and mountain walleyes where are very nice to live but UMTS typically fails on the rough terrain. The telephone wires there are mainly the old copper wires so that the speed of connection is not as fast as desired. So I always suggest e-learning provides to have also contents to download, where the user can first download the material and then learn offline on his or her computer.

There are four universities in Slovenia: The oldest is the University in Ljubljana (founded 1919), the second in the University in Maribor (founded 1975. Maribor is the second largest city of Slovenia located at its north-east border). The third university is the Univerza na Primorskem (2003, University of Primorska or roughly translated into English: the Littoral University)The fourth university is the University in Nova Gorica (2006), located in the small quite new town Nova Gorica, which lies at the very border with Italy.

In addition to the state universities and other state owned schools there are also many private schools. Especially language teaching schools are popular and they also heavily rely on the e-learning. For example, the school Lingula (http://www.e-jezikovni-tecaji.com/e-ucenje   retrieved on Dec.1st 2009) offers e-learning software to practice language and rhetoric learning.

There are eight faculties that provide specialized ICT education leading to a diploma of computer sciences or informatics (e.g. business informatics, social informatics, computer engineering etc.). We need to point out the PC/student ratio is significantly below the European average. It also happens that even the existing equipments have not always been fully used. Many teachers still teach the old way although they are attending ICT courses.

The developments thus basically rely on enthusiasm of the teachers. Mambo (Joomla!) and Moodle are the platforms in teachers' education schemes (A 20-hour Moodle course is included there) Institute for Education of Republic of Slovenia included Moodle and Mambo in official courses for teachers financed from public sources. Schools are also increasingly involved in international projects (e.g. eTwinning).

Slovenians are open to the use of new information society technologies. But the skilled kinds of population are of course the young Slovenes, who have already grown up with the computers. Statistically Slovenia stands on the average level in Europe.
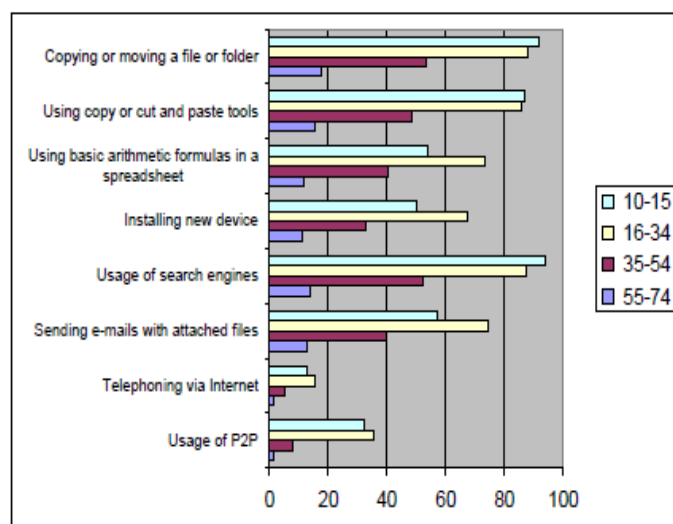
Figure 2: Structure of e-skills by age, Slovenia, 1st quarter 2006, Source: Statistical Office of Republic of Slovenia.

(Source:
Vasja Vehovar http://ftp.jrc.es/EURdoc/JRC45496.pdf retrieved on Dec.1st 2009)

Government
(http://www.mss.gov.si/fileadmin/mss.gov.si/pageuploads/podrocje/IKT/akcijski_nacrt_informatizacija_solstva_8_2006.pdf retrieved on Dec.1st 2009) advises that every pupil must acquire the basic e-learning skills. There need to be performed seminars and workshops which teach how to make use of

ICT and e-learning. These workshops are organized for students as well as for the teachers (of course different seminars for these two different groups). The teachers and the school management need to attend an e-learning fair every three years or in a more frequent period. They also must author papers related to the ICT and e-learning. The ICT on those areas of Slovenia where it is already well established needs to be further evolved and the on the less developed areas the ICT needs to be set up.

In its projects the Slovene government makes sure that enough of e-textbooks is produced. These e-textbooks have to be routinely used in the everyday schooling process and at home. Also the classical (paper) textbooks need to be scanned and offered electronically. For the new textbooks it will be required that their e-form is required as the basic form of the modern textbook. The government also established expert groups that take care of the above mentioned needs and requirements.

The Ministry of Education and Sport takes care about educational policy of the school, inspections, funding etc. The Ministry of Higher Education, Science and Technology similar tasks for the university level.

The National Education Institute (http://www.zrss.si retrieved on Dec.1st 2009) takes care over the public education what means about 300 kindergartens, 450 primary and 160 secondary schools. It supports also ICT education. In fact it was there where I started to produce my first e-content in 1997 since they had the best computer in Slovenia dedicated to e-contant and accessible. (Silicon Graphics Indigo with Softimage software) But lately the intensity of dedication to e-learning there is not so intense anymore.

The Laboratory for Telecommunications at the Faculty of Electronic Engineering, University of Ljubljana (http://www.LTFE.org and http://www.e-studij.net retrieved on Dec.1st 2009) is one of the most important e-learning technology and content providing organizations in Slovenia. Its proprietary virtual learning platform E-CHO, is used on the university, in the Slovenian Army and some commercial organizations.

The Faculty of Economics (http://www.ef.uni-lj.si retrieved on Dec.1st 2009) at the University of Ljubljana is was one of the early users of e-learning in Slovenia. It provides online support for most of its courses and uses its own software.

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The Faculty of Management Koper at the University of Primorska (http://www.fm-kp.si retrieved on Dec.1st 2009) is using the Moodle platform and started with online courses already very early. This is also important sinc Primorska is not a town, but for Slovenian standards quite a vast district.

The Academic and Research Network of Slovenia; http://www.arnes.si retrieved on Dec.1st 2009) –ARNES, established in 1992 provides free broadband access to all schools, universities and research institutions because ARNES if funded by the government

> *ARNES has a 2x622 Mbit/s connection to the pan-European research network GEANT. ARNES maintains its own WWW, FTP, WAIS, X.500, News, MBONE, IRC and Gopher servers. ARNES also manages the top-level domain (.si) for Slovenia and runs the top-level Domain Name Server. In addition, ARNES runs the SIX (Slovenian Internet Exchange) where all those Internet providers, which have their own international connectivity can peer between themselves. ARNES is a full national member of TERENA, a shareholder of DANTE, a member of CEENet and a member of RIPE.* (Vasja Vehovar http://ftp.jrc.es/EURdoc/JRC45496.pdf retrieved on Dec.1st 2009)

Research related to ICT and E-learning in Slovenia
In the field of artificial intelligence and machine learning (Prof.Bratko), Slovenia is one of the leading countries. (Institute Josef Stefan; http://www.ijs.si and Faculty of Computer and Information Sciences; http://www.fri.uni-lj.si retrieved on Dec.1st 2009). However, governmental funding of e-learning research projects is very limited. In the research grants that obtained by the above mentioned institutions the e-learning is only of indirect relevance.

> *The computerisation of schools (RO) is a central project for funding ICT-related educational activities in pre-school, primary and secondary educations and is related to the Ministry of Education and Sports. It has been undergoing various transformations in the almost two decades of its history. The total funds have thus varied, however, currently, the entire budget for all schools (below-tertiary education) can be estimated at around €12 million per year for computer equipments, software solutions, teachers' computer training etc. Slightly more than half of this sum is provided by the*

Ministry, while other sources (local sources, own sources, EU sources…) contribute the remaining parts. This sum includes the full array of relevant costs, from the salaries of computer support staff to software and hardware for the school. The share of funds for the development of on-line courses, digital content and virtual environments is low and difficult to estimate, perhaps around a few percent of the above sum. Other target funding from EU structural funds, such as the €7 million ECDL100 project for 2005 and 2006 are partially supported by EU sources. There are other EU funds such as the €0.5 million annually for teachers' ICT education and the recent tender for almost €2 million for e-content developments in 2006 and 2007. As an illustration we should also add here a more general figure that roughly 1% of total public education expenditures in Slovenia is allocated to ICT-related costs. This is also in line with the ICT share within total government spending on ICT, which is also around 1% of the total government budget (€8 billion). Total governmental ICT spending (relative to the budget) is among the largest in the EU25. It is much more difficult to estimate the commercial eLearning market. If we limit ourselves to the development of tools for the virtual learning environment and for the production of on-line courses, we can estimate the number of persons working full-time in eLearning commercial providers, global vendors (e.g. IBM) and their local subcontractors and other organizations that offer eLearning services in the commercial market. Very roughly, this number does not exceed the equivalent of a few tens of person years annually and the corresponding budget could thus not go much beyond €1-2 million. Despite this, we are perhaps not talking about more than around few more tens of persons per year, which also does not surpass €1-2 million. With respect to LMS and other tools and platforms related to virtual learning environments, the prices are increasingly low due to competition from the open source platforms. Moodle has become almost a standard platform in secondary schools. It is also used in the majority of universities and in many large corporations. If we talk about the implementation of on-line courses, the prices vary with respect to the level of requirements of the client. Besides technology itself, which is getting cheaper and cheaper, the prices of implementation are basically determined by the amount of persons-month work for eLearning specialists and supporting ICT and designer staff. Annual costs for a professional do not exceed €4 000 monthly and are much lower for the technicians. Very rarely can the e-learning service provider afford an advanced ratio of 1:80 (80 hours for preparing 1 hour of on-line course), which was the case with ECDL. (Vasja Vehovar http://ftp.jrc.es/EURdoc/JRC45496.pdf retrieved on Dec.1st 2009)

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ICT and E-learning Users in Slovenia

The Slovenian Constitution (Article 57) states that primary education is compulsory and funded from public sources. Is also says that the state should provide an environment which guarantees the citizens' real options for education, as well as the freedom to select one's preferred education. The prevailing free and public form of formal education was already one of the advantages for the citizens retained from the previous (i.e. 'socialist') system of the previous Yugoslavia. Slovenia has also preserved its culture and language, while the Slovenian language somehow now also complicates the e-learning process.

Real teacher represent different "tools" which could never be replaced by the e-learning. However, just e-learning makes teachers less restricted to classical curriculum and gives them more time than they had before for their creative work.

In addition to the worldwide known international commercial e-learning solutions in Slovenia there is also some e-learning solutions developed by the Slovenian companies and/or universities. LMS software EcHO was the first and developed at the Faculty of Electronic Engineering (University of Ljubljana). Then comes the LMS tool 'ELEUM' from the University of Maribor. the *eCampus* of B2 is a business oriented solution which contains LMS, LCMS and content-creation aspects. *EasyCoBu (*easy content builder*)-* is an open source platform, produced by the Nevron company. But the free Moodle is increasingly popular in Slovenia.

Many people in Slovenia agree that technology is not the crucial factor anymore on the e-learning field. My opinion, as the author of the e-learning content since 1996 is that this is both true and not true – as we look at it. If we stand with the classical e-learning then technology is OK. But people want to learn the new way. For example, my company is specializing from its very beginning on the web virtual reality e-learning (web3D).

It started in 1997 with VRML (virtual modeling language) which is still the "latin language" of web3D. My e-learning philosophy is that we need to offer people highest quality e-learning content and let them decide what way do they learn and do not bother them with uninteresting explanations and tests. I also think that often LMS (learning management systems) are more a police control of the students that a real educational help. Myself as the teacher I do not need to be able to follow all the steps a student has

performed during his learning session. This is his privacy, the teacher's role is to take care during the exam. The LMS systems tend to exclude many new technologies like web3D and the typical design if the LMS systems on the Slovene portals are standardized and poor, at least to my taste. Also pupils say to me that they prefer using Google as their primary e-learning tool.

ISSUES

ICT and E-learning Projects in Slovenia
In 1993 the **RO** project started (computer literacy for '**R**ačunalniško **O**pismenjevanje'). In part, the ambitions of these activities resemble those of the Tiger Leap project in Estonia but as I was in Estonia in 2004 my personal impression was that the ICT and e-learning seemed to be more developed than in Slovenia of that time. In Slovenia RO stimulated and founded the computerization of the schools and producing the e-content. But in the start of this century the RO funding was much reduced (after the RO project being formally finished) what coincided with the general decline in ICT-related speed of adoption in Slovenia.

Ambitious redesigns of the RO project proposed in 1999 and in 2003 were not accepted. The latter had foreseen a radical increase in investments, from €4 million to €40 million per year. My personal opinion is that since Slovenia has not many natural resources apart from its nice nature with forests and water, investing into ICT at that time when Sloviena was quite above EU average would make much sense. Today Slovenia already missed this opportunity and has fallen into the EU average. For the creation of e-learning software a public tender in 2006 was launched (and it lasts till now - 2009 and will probably also in the future) with the target population mainly for the primary and secondary schools although that also university e-learning. So on the on the Slovenia e-content portal there is gathering more and more e-learning content.

Slovenia is much involved into the European projects and they are and important source of funding for us. An example is the *eLearning programme* (2004-2006) http://www.elearningeuropa.info/), with increased digital literacy, eTwinning activities, horizontal activities and virtual universities. There were 100 Slovenian schools involved in the eTwinning project (http://www.etwinning.net). There is also an increasing involvement in EU programmes, from Leonardo to Framework programmes.

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CONCLUSION

At the end of the last century the already mentioned RO (Computer literacy) project made a strong stimulus toward modern e-learning in Slovenia and at that time the Slovenia was above the European average. However in the beginning of this century funding decreased and Slovenia became the average country in Europe? In the last years there has been a significant funding stimulation through the e-gradiva project supported also by the European Social Fund and there is presently a lot of e-learning material on the Slovene servers. Also other European projects contribute significantly to the development of the e-learning in Slovenia.

As it has been shown above, there is available considerable funding for ICT and e-learning activities in Slovenia. I have been involved in this with my company for more than ten years and I express here my personal view about the possible improvements.

First of all, as the funding comes from the EU Slovenia needs to obey to the respective EU laws and is not solely itself responsible for the current status. As EU projects are most welcome and they provide life-saving funding to many Slovene employees, we feel that there can be much improved and the EU money could be spent in a much more efficient way. First of all, the classical EU projects are tailored to big companies and universities especially because they seem to be more trusted to give back the work in return for the EU funding (this is reflected through the company viability requirements a company needs to fulfill before it can become a candidate for a project).

On the other hand, small companies which would like to dedicate their full time and enthusiasm to the production of the e-learning content encounter difficulties especially because typically (and especially for the Slovenian e-gradiva project) the company needs to pay its workers in advance and then this personal costs become eligible for the EU commission. Basically there is also possible to get advance payment by the EU, but then bank guarantees are needed which are expensive and difficult to obtain. The simple solution is to allow that the company is eligible to pre-finance with the work of its staff.

The staff works for free or for low wages producing a high quality product, for which then it gets funding afterwards by the EU. This was possible in the

5th Framework project scheme of the EU, but now this seems to be almost impossible to practice although it is in the industry a common practice – the workers finish their job and then get paid… Or a book author writes the book "for free" and then shares the profit with the publishing company that sells his book. Let me point out again that Slovenia is not responsible here; the rules are given ba EU. Our company is working also in the e-gradiva project which is a very good and healthy initiative that has already produced lots of free e-content materials for the users in Slovenia. However, I still have some suggestions that might much improve the value for money ratio in this and similar projects.

First, the criteria to obtain such a project are friendly to the universities and big companies with lots of reference. Newcomers wanting to work hard and having fresh ideas encounter many difficulties before they obtain the project.

Although the products of the previous calls for the e-gradiva projects produced lots of content this content was often of very elementary quality and one is surprised how big institutions with lots of reference can produce such elementary quality. One of the possible answers would be that the real authors there (students or doctorate students) have neither the time nor the will to produce the real quality product since this is just a minor part of their everyday tasks they have to accomplish.

My experience shows that producing good e-learning content is a very demanding task which needs the involvement of real experts who are skilled in the topics they explain, computer technology and art design. Professors often do not understand this and being educated before the computer era they think e-learning is as simple in its philosophy as a Disney cartoon film seen though the eyes of a child (the same cartoon seen through the eyes of an expert is understood as a highly professional achievement). Therefore the solution according to my opinion is to cultivate working groups around the expert teams for e-learning. The newcomers learn from them and are able to make their new products which they get funded e.g. by the e-gradiva project foundation if only the products meet the required standards. This drastically reduces the administrative costs which can then be redirected into the content building. This is no new idea. There was such a practice already implemented in the RO projects in the late previous century (RO being funded by Slovenia). So the EU pays for the finished product and no bank guaranties and pre-payment hassle is required.

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CHAPTER-35

eLEARNING IN SWEDEN

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ABSTRACT

Sweden is viewed as a high-tech country with a top rank in e-readiness. It is recognized as a country of high speed in adopting new technology. Since long ago Sweden is known as world leading in educational ICT.

All Swedish schools have had computers and Internet for many years. As Sweden is decentralized, differences are vast between different municipalities and schools. Sweden has no national e-strategy for schools.

A current key challenge is how to transform e-learning from individual initiative to university culture. Another challenge is the teachers' and academic staff's lack of ICT skills and knowledge. Pupils and students are often more knowledgeable than their teachers.

Swedish educational ICT discussions are to be considered as quite mature and therefore this chapter can make a contribution to countries where ICT is being introduced in the educational system.

COUNTRY

Sweden is the third largest country in Western Europe. The inhabitants are 9.3 million and its capital is Stockholm. Sweden is a constitutional monarchy and the nation's legislature is the Swedish Parliament. Elections are held every four years. The Life expectancy is 79 years for men and 83 years for women.

The Swedish GDP, was in 2007 2, 6 and the employment rate 75, 6. In 1970 Sweden was the fourth richest OECD country, measured as GDP per capita. During this decade, Sweden position has varied between 12th and 15th place (http://www.ekonomifakta.se/en/Facts_and_figures/GDP/Economic_growth/ GDP). Since 1995 Sweden has been a member of the European Union. The Social Democrats, have ruled Sweden for most of the 20th century. In 2006, the four Alliance parties — the Moderates, Liberals, Centre and Christian Democrats — formed a government. The Parliament then set a new "world record" because 47 % of its members are women.

Figure 1.
A Map of Sweden

Sweden's culture is characterized by simplicity, wit, sensitivity to new impressions, as well as an ever-present love and respect for the Nordic natural scenery, which is evident in great Swedish artists like August Strindberg, Ingmar Bergman and Astrid Lindgren. In recent years Sweden

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has attracted attention internationally by art forms such as design, fashion, pop music and gastronomy.

The value of Sweden' natural resources have been enhanced by a long series of Swedish inventions and refinements of inventions. This is one reason why Sweden today has an extremely large number of multinational corporations and brands. Volvo, Saab, Ericsson, ABB, AstraZeneca, Electrolux, IKEA, H&M, Hasselblad and Absolut are a few of these Swedish-rooted companies and brands (http://www.sweden.se/eng/Home/Quick-facts/Sweden-in-brief/Arts-Culture).

During the 20th century, at the price of the world's highest tax burden, Sweden built up what is often called the world's most generous general social welfare system, in which all inhabitants would always be guaranteed basic economic security in all stages of life, with free (tax-financed) schools, child care, health care, pensions, elder care and social services.

Sweden is internationally recognized as a country of high speed in adopting new technology (http://www.sweden.se/eng/Home/Quick-facts/Sweden-in-brief/Technology-Infrastructure).

EDUCATION

Education and its priorities
Education begins in day care centres and preschools, and then continues with the nine-year compulsory school and the voluntary upper secondary school. Remarkable in an international perspective is that university and college education in Sweden is also heavily tax-financed and more or less free, as well as supported by a generous system of study loans and grants that makes higher education accessible to people from all social classes.

During the past decade, large investments have been made in higher education and the number of students has risen by 50 %. Also characteristic of the Swedish educational ethos are extensive publicly subsidized systems of further education, retraining, adult schools and study circles.

In addition, the private business sector offers a well-developed system of further education and self-improvement. Research plays a key role as an investment in the future (http://www.sweden.se/eng/Home/Quick-facts/Sweden-in-brief/Education-Research).

In 1842 compulsory elementary schooling was introduced in Sweden. Today it is a nine-year compulsory education for children between seven and sixteen years old. In 1966 the Ministry of Education took responsibility for pre-schools in Sweden.

Pre-schools are open to children from one to five years of age. Municipalities have an obligation to provide pre-schooling for children whose parents work or study. In 1998 pre-schools got their own national curriculum and six-year-olds were given the opportunity to attend pre-school classes in school. The tradition emphasizes the importance of play in the development and learning process and the interests and needs of the child are keys to their education. In the autumn of 2005, 77 % of all children between one and five were registered in pre-school. Children between 6 and 12 years are offered day care before and after school hours. It can be an after-school centre, a family day-care home or an open after-school program. Day-care fees for school children must not exceed 2 % of parents' gross income. Students who need special support generally attend ordinary classes and students with intellectual disabilities are offered a special program. A three-grade system is used. Grades are not given until the autumn term of year eight, but the Swedish National Agency for Education recommends formal school reports from year five. Around 98% of Swedish students start upper secondary school. Students can choose from 17 different programs and they run for three years.

All programs comprise eight core subjects. For students who fail to qualify individual programs can be tailored to their needs. 89 % of students meet the requirement to attend upper secondary school (http://www.sweden.se/eng/Home/Education/Facts/Swedish-education).

The state is responsible for higher education. The Parliament and the government decide which rules should apply and how resources should be allocated.

There are 14 public universities and 22 state colleges in Sweden. Altogether there are 61 colleges, universities and private training providers. A large part of the state-funded research takes place at universities and colleges.

In 2006 the drop out rate for full time students was 17% and 2759 (http://www.hsv.se/statistik/statistikomhogskolan/oversiktstabeller/rik suppgifter.4.6df71dcd1157e43051580001791.html) passed for doctorates. In 2007 a new educational structure was introduced as part of Sweden's efforts to bring higher education to the work of the Bologna process. There are three levels of higher education: A basic, an advanced and a research level. Sweden has also switched from its national credit point system to the ECTS credit system. (http://www.hsv.se/densvenskahogskolan.4.539a949110f3d5914ec800 056443.html)

The public adult education system comprises municipally-run adult education, adult education for the intellectually disabled and Swedish for immigrants. There is also advanced vocational education as well as supplementary educational programmes. Liberal adult education, which has a long history in Swedish, is provided by folk high schools and adult education associations.

In 1991, the government handed over much of the responsibility for schools to the municipalities. It gave way to more goal- and result-based methods. In 1994, new curricula were introduced that interpreted the mission of Swedish schools in a radically different way. The changes outlined, educational responsibility, teaching methods, non-traditional teacher roles and teaching materials.

Independent Schools
During the 1990s, the terms "school choice" and "independent schools" were established and schools now operate on an open market. About 11% of the Swedish pupils attend an independent school. 25 % of the pre-schools are independent schools. The vast majority of independent schools are in the big cities area. In approximately 33% of the country's municipalities there are no independent schools at all. Each child is financially allocated an education, in this way the Swedish government supports the establishment of independent schools to a unique extent. Independent schools must be approved by the Swedish National Agency for Education and follow the national curricula and syllabuses.

Current issues are; whether the independent schools only receive the good and problem-free students, if the profit limited liability is an inappropriate

organizational form and if independent schools have contributed to segregation (http://www.friskola.se/Om_friskolor_Fordomar_och_fakta_DXNI-70516_.aspx).

The Democratic Mission and Other Issues

Swedish schools and pre-schools have a democratic mission. This is a matter of developing students' knowledge of democracy and upholding basic educational values, and a matter of helping to raise students as democratic citizens. In line with this work, Parliament unveiled a national strategy in 1999 to anchor the UN Convention on the Rights of the Child, with state and municipal authorities and county councils. Apart from organizational and curricula issues the school system is also affected by issues such as immigration and integration. The discussion is both political and educational and goes to the root of society and democracy. Another issue is about how state control of universities and higher education institutions is to be structured. To increase the autonomy of higher education institutions while providing for the interests of the state in being able to govern and control parts of higher education are some aspects of the debate. (http://www.sweden.se/eng/Home/Education/Facts/Swedish-education).

DISTANCE EDUCATION

Government Policies

In 1898 the Swedish distance education started based on correspondence courses. Institutions of correspondence developed rapidly. They demonstrated the independence of time, of physical location and the idea of mass education. A new way to look at education emerged and the correspondence institutions paved the ground for the adult education we see today. Three reasons have dominated Swedish distance learning through the ages; compensatory education ideals, the link between the prosperity of society and population's level of education and updating of the workforce caused by developments in business (SOU1998:83).

In the mid-1990s the Government appointed The Distance Learning Committee, (Dukom). The aim was to conduct an extensive experimentation in higher and adult education and to make proposals on how the continued developments of Swedish distance learning could be supported. The study proposed that a national support agency for the development of distance learning was needed. The Distance Authority (Distum) established in 1999 and lasted for three and a half years.

Two new offices were then created, one targeting distance learning activities in universities, the Swedish Agency for Virtual campuses and one to support similar activities in adult education and municipal adult education, National Centre for Flexible Learning, both were funded by the Swedish Ministry of Education and Science.

The primary task for the Swedish Agency for Virtual campuses (2002-2008) was to co-ordinate the different e-learning courses offered by the various universities. The Authority managed in short time and their name changed to The Agency for networking and collaboration in higher education and got the responsibility for the operation of the virtual portal and to funds support to the development of its content.

The mission for National Centre for Flexible Learning (CFL) was to support the development of flexible learning in education and municipal adult education. It developed a new model for state aid for local development. The role was not to be the expert, but rather a hub of the network. The model was one of the main reasons the National Centre received the elearning price in 2005. The authority was closed in 2008. Today the government's view is that both the implementation and the development of flexible learning is a responsibility that rests with the municipalities and public education organizations (Holmberg, 2008).

Large national investment in this together, one billion USD has given distance learning environment for rapid development. The initiative has come from the government and the Ministry of Education. The Knowledge Foundation, Wallenberg Foundation and The Public Education Council are examples of other financial supporters. Sweden has never had a distance university as in England and Finland but Swedish Educational Broadcasting Company (UR) has had an important role in adult education (Holmberg 2008 & http://www.ur.se/aboutUR).

Higher education
During the academic year 2006/07, the number of distant students were 89 000, or 23 % of all students in higher education (compared with 8,4% in 1993). In 2007 (https://www.studera.nu/studera/1374.html). more than 2700 courses were offered. (https://www.studera.nu/studera/1374.html). More than 40% of the distance students combine studies at a distance and campus. Students only studying at a distance are in average older than students who only study on campus.

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The proportion of women is also slightly higher among distance students, in traditional distance learning 76% are women and http://www.hsv.se/download/18.1dbd1f9a120d72e05717ffe2356/0912R.pdf in online education 66% Many who study at a distance are students who have children and have already studied at university or college and return to (http://www.hsv.se/download/18.539a949110f3d5914ec800085827/0639R.pdf). further studies

Potentials, Constraints and Further issues
To work with distance learning has become a positive force in the development of the regular education (SOU1998:83). Online education is a qualitatively good way to meet society's growing need for education. No significant difference exists when the results are compared to previous research. The new technology has revolutionized distance education from largely to be based on the tutorials to make learning something in collaboration with other possible. It is what differentiates distance learning and online education (Hrastinski, 2009).

Distance education has been difficult to penetrate in higher education in Sweden. It is expected to achieve more with less resource. University teachers have prioritized research and campus-based learning. When distance learning has taken place, it has often been a lack of independence of time and place both for students and staff (Holmberg, SOU1998:83).

Distance learning has given educational opportunities to women. The limitations of time and movement as home workers women often live with, does not mean that they are well represented in the industrialized world's (http://www.cisco.com/web/DE/pdfs/publicsector/elearning_07_04.pdf) distance-learning In higher education Sweden is an exception in this case, the reasons for this can be discussed.

If the primary characteristic of distance learning is that most of the communication between student and teacher takes place through a medium, so is the way to prepare for teaching the second most distinguishing feature (Hrastinski 2009). The new challenge for the teacher is to collaborate. To change perspective and see colleagues and experts from other areas of productive forces and to have enough time for it (SOU1998:83). Another aspect concerning redistribution of power is discernible in the relationship between students and teachers. Education systems should offer courses that allow students to pursue their studies so that time, tempo, study paths and

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study sources vary. If the course material moves into material selected in newspapers and web environments selected by the students, and the course is conducted with a far-reaching individualisation the student will be the one controlling tempo and study time. Initiative and control will move from teachers to students. If so, is it a risk that the education then moves to just serving the students?

The conditions for interaction which the classroom provides physical presence and synchronically in time, is usually lacking in distance education. Therefore an important issue is how to create a good learning environment online? (Hrastinski, 2009). Maybe further and different research about distance learning is required? We often meet biases like the support students can get with the intellectual side of their studies is essential for study success but studies of emotional support and its importance barely exist.

TECHNOLOGY

ICT in Sweden

Sweden is since long ago known as world leading in ICT in education and all Swedish schools have had computers and Internet for many years now (Myndigheten för skolutveckling, 2007). Although the financial crisis has struck very hard on Sweden's economy, digital development marches on in Sweden (EIU, 2009). On the Economist Intelligence Unit's list 2009, Sweden was ranked second. The Swedish social and cultural ICT environment is the most supportive for innovations in Europe and perform strong in fostering new businesses. Swedish government ICT policies and visions are very well developed (EIU, 2009).

Sweden as a country has a high tech profile and slightly more than 80% of its population of about 9 million people is Internet users and about 40 % are broadband subscribers (www.internetworldstats.com). Swedes often use mobile Internet connections (www.scb.se) and generally they use the Internet as follows: The average Internet user in Sweden is a man of 15-24 years of age. About 70% of all Swedes use the Internet daily or almost daily (www.nordicom.gu.se) and spend 9,7 h/week online. 50% of all 5 year olds have used Internet (Skolverket, 2008).

The purpose of individuals use of the Internet in 2007 was sending/receiving e-mails: 69%, playing/downloading games and music: 35%, reading/downloading online newspapers/news magazines: 43%, listening to

web radio/ watching web television: 33% and other communication uses: 28% (www.nordicom.gu.se).

As we have seen Sweden is a country where most people have digital competence, still the government put an effort to bridge the digital divide. The Swedish government participates in the *i2010 Strategy for an innovative and inclusive European Information Society*. i2010 connects EC ICT-policies, initiatives and actions so that ICT can make a positive contribution to economic growth. i2010 is part of the Lisbon strategy to make Europe a more competitive economy The Swedish government presented three ICT (http://ec.europa.eu/information_society/eeurope/i2010/strategy/index_en.htm) objectives in 2008:

- ICT shall give life quality and ease every day lives for people and companies.
- ICT shall enhance sustainable development.
- ICT shall be effective and safe in all parts of the country for everyone to be able to access interactive public e-services (Regeringskansliet, 2007).

The Swedish government has financed about 40 popular adult education projects within the project *Digital divides – efforts to overcome these*. These projects were for example designed for physically handicapped, senior citizens, immigrated females with short education and owners of small companies (SIKA, 2007).

ICT in Swedish Education
Sweden is the OECD country that in the years of 1995-2002 had the largest contribution of ICT investment to GDP growth (OECD, 2005). Given that Sweden is in the forefront of ICT development the number of computers in school is not so impressive. In the PISA survey of 2003 only 0,2 computers per student were available which was average among OECD countries. Almost 100% of the computers in school were connected to the Internet though (OECD, 2005).

Educational ICT has not developed in the same pace as in the market. Researchers in Sweden often lift digital competence as the fourth basic skill along with reading, writing and counting. Sweden has done massive investments in ICT in education, especially when it comes to the interface between ICT and learning.

Despite this reluctance to ICT is often found within the school system. Sweden was fast to see the use of ICT as a question of democracy and equality and is ahead internationally when it comes to ICT skills and competence (KK-stiftelsen, 2008).

Teachers -most pre school teachers use a shared computer.10% of pre school teachers use it in class every day, 25% every week and only 5% of them think that they are very good ICT users. The average compulsory school teacher use a computer in class every week, want to learn more about how to use ICT as a pedagogical tool and how to use graphics, audio and video in class. The average teacher has the best access to pedagogical software in Maths and Language and do not very often teach source criticism. In Upper Secondary 80% of the teachers have their own computer and almost 30% use it in class every day. Especially language and vocational software is accessed.

More than 15% think they have very good ICT competence and almost all teach source criticism. About 70% of teachers in higher education have their own computer and 40% of them use it in class every day (www.skolverket.se).

Students – about 50% of students frequently use the computer in school and about 95% use it frequently at home (OECD, 2005). Swedish students are among the most confident ICT users when it comes to routine tasks such as opening a file or playing a computer game, especially boys. When talking about high-level tasks the gender differences are very large according to PISA.

Also Swedish students are among the most confident when it comes to using the Internet (OECD, 2005). In Sweden ICT is especially integrated in special education and special teachers believe that students with concentration difficulties or other functional disabilities such as speech, language and communication problems, visual handicaps, multiple handicaps and physical difficulties are benefited by ICT (Myndigheten för skolutveckling, 2007).

Sweden's educational ICT profile
E-learning Nordic 2006 studied the effects of ICT in learning in the Nordic countries. The result from questionnaires of Swedish school leaders, teachers, parents and students show that ICT has a positive impact on overall

objectives and student performance such as reading and writing (E-learning Nordic, 2006).

Given all statistics a complex ICT profile emerges. If you combine the assets of ICT in school with the knowledge about ICT and motivation to use ICT in the classroom Sweden is ranked almost last in the EC commission study *ICT in schools* (Myndigheten för skolutveckling, 2007). This is very interesting since Sweden has a top rank in e-readiness and since ICT is a focal point in the Swedish educational discourse.

Government Policies for ICT in Education
In the end of 2008 the Swedish government gave the National Agency for Education the commission to promote the development and use of ICT in pre schools and schools. Communication between pupils, parents and students is to be promoted by ICT. The agency shall work for a safe use of ICT where integrity is secured and where critical viewpoints are encouraged. Needs for development at schools and pre schools shall be assessed and especially teacher's use of ICT as pedagogic learning resources aimed to develop their education shall be promoted.

The agency is responsible for the development of different projects within the frames of the European Schoolnet. About 2 million Euros is budgeted and the assignment shall be presented in September 2009 (Utbildningsdepartementet, 2008).

The Swedish National Agency for Education is also developing hands on projects and resources to increase ICT competence. To mention a few examples (http://itforpedagoger.skolverket.se) there is a special website for pedagogues with facts, research, activities, blogs and interactive examples of how to use ICT for learning.

Another website provides ten directions for use of different online (http://www.pim.skolverket.se) resources in the classroom There is a resource that offers free inspiration- and support material such as images, sound effects and graphs (http://www.multimedia.skolverket.se).

Another web resource is designed to increase teachers´ and librarians´ knowledge in information search (http://kollakallan.skolverket.se). The agency is also responsible for a search engine specially designed for younger school children's needs (http://lankskafferiet.skolverket.se).

They also have a special website for principals and school leaders about how to use ICT to run a school (http://ledamedit.skolverket.se).

The Swedish Schoolnet is operated on behalf of the Government. Its purpose is to serve as a guide in the process of integrating ICT in teaching in Swedish schools. It was also the initiator to the European School net with the aim to bring about innovation in teaching and learning to its key stakeholders: Ministries of Education, schools, teachers and researchers (http://www.europeanschoolnet.org/ww/en/pub/eun/about/euninfo.htm).

A unique initiative in Sweden is *The Swedish Media Council* which is a committee of inquiry in the Swedish government offices, working with young people's media situation. Their aim is to reduce the risks of harmful effects of media such as the Internet, film, TV, computer and video games. They raise awareness about risks and benefits of media use, offering advice to parents and teachers. One of their campaigns is partly funded by the EC; *The Young Internet* which is collaboration with BRIS (Children's Rights in Society) and represents Sweden in *Insafe*, a European network of e-safety awareness (www.medieradet.se/inenglish).

E-LEARNING AND ICT INTEGRATION

E-learning in schools

One of the goals to achieve in compulsory school is to use information technology as a tool for awareness and learning (Lpo94). Otherwise there are no guidelines for how IT should be used in Swedish schools. Sweden has no national e-strategy for schools; it is an issue which is the responsibility of the municipalities and the schools. Many municipalities have got e-strategies on a more general level, some municipalities have got a common e-strategy and some schools have their own e-strategy. In the report of study on a new teacher education (SOU2008:109) they suggest that one of the four global perspectives which will characterize and permeate all teacher education is ICT as an educational recourse and that Sweden establish a national action plan for ICT and digital literacy.

An important and current issue in Sweden is the teachers' skills and knowledge about ICT. Students are often more knowledgeable in the field of ICT than their teachers, which reduce the teacher's propensity to use ICT in teaching (SOU2008:109).

E-learning at Higher Education
The development of ICT is regarded as an issue which Swedish universities have to prioritise alongside all the other considerations that are involved in running a modern university. A national strategy for e-learning is considered to be irrelevant, as ICT already is regarded being a mainstream strand. Though since 2008, there is a national investment, in the network "ICT in teacher education" from the Knowledge Foundation. The purpose is to raise teachers' students' digital skills so that they in their future profession can use ICT to enhance students' learning. The Swedish universities have been offering courses in e-learning format for many years. There are two modes of e-learning, decentralised study and internet-based study.

In decentralised study the students meet at regional mini-campuses or at study centres. In internet-based study, courses are followed via the Internet with little or no face-to-face interaction. Sweden has a long tradition of building study centres all over the country to promote continuing and further education. With the integration of ICT these centres have been reinforced and acquired new vigour in relation to higher education. According to the study," Virtual Models of European Universities" Swedish universities were described as co-operating universities, characterised by the extensiveness of their involvement in strategic cooperation with both domestic and foreign universities and with other education suppliers. They were, like the front-runners, quite advanced in the integration of ICT into their campus-based teaching, but show a more limited use of e-learning courses and digital services. This means that all the universities had access to computers, as well as the Internet and e-mail accounts. In other words, the basic foundation for (http://ec.europa.eu/education/archive/elearning/doc/studies/virtual_annex_a_en.pdf) the use of ICT was essentially in place in 2003.

A key challenge is that most academic staff lack knowledge concerning the potential of ICT and new ways to use it. Another challenge is how to transform e-learning from individual initiative to university culture. This is impeded by a combination of the absence of a coherent and comprehensive management approach to ICT integration with a degree of resistance to change in the university culture.

Single and Dual Mode
After extensive investigations small-scale solutions were chosen in Sweden. The campus-based institutions, would also take on distance learning, the dual mode system. In 1980s the dual mode was only at the university level,

the two state schools for adults already had built up single mode institutions. The motives for dual mode were; the need for linkage between education and research, inexperience of interaction between governmental solutions and private initiatives, doubtfulness about the possibility to reach sufficiently large numbers of students and finally it had to do with attitudes towards and concerns about distance learning in large-scale form. A basic problem for teachers who work with distance education in dual mode institutions today is to have sufficient time and resources for the extensive development distance education requires (SOU1998:83).

Lifelong Learning
Lifelong learning is determined by the individual study line and is therefore difficult to clearly capture statistically. Lifelong learning within the university is described in several respects with information on how and at what age people are participating in education, if they have studied previously and how they study.

Nearly half of college students are older than 25 years in Sweden, 20% older than 30 years, 10% older than 40 years and 4% are older than 50 years. The proportion of the population who are studying at higher education is increasing in all age groups over 25 years. Lifelong learning is also facilitated by the increased distance education, offering training that is flexible in time and space. In all age groups from 30 years onwards, the number of women studying at higher education is at least twice as large as the number of men.

The proportion of women in the recurrent training is 50 % higher than the corresponding proportion for men. In the case of recurrence after graduation, the difference is even greater, partly as a result of that there are more female-dominated courses of advanced nature.

Another measure of lifelong learning is the distinction between traditional and non-traditional students. Traditional students are those who begin studying right after high school and pursue their studies at universities and colleges on a full-time without major disruption. The proportion of non-traditional students is 51% at Swedish universities and colleges http://www.hsv.se/download/18.539a949110f3d5914ec800085827/0639R.pdf Use of ICT and other methods of distance learning, tutoring at learning in the workplace, the systematic use of validation of real skills, the

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infrastructure of adult learning which can support an individual's awareness and learning, are key issues according to lifelong learning in Sweden today.

CASE STUDIES

School projects

ENIS – European Network of Innovative Schools are schools that have been selected as front runners and the most innovative ICT schools in Sweden. Schools are supposed to act as examples of good practice and they are:

- exchanging experiences, problems and solutions
- setting up new ICT-collaborative projects with European schools
- participating in seminars, conferences, exhibitions and workshops
- testing and validating new educational materials
- supporting other schools and offering study visits http://enis.eun.org)

ITiS–the largest ICT school development initiative in Sweden ever run, in different forms, from 1999 to 2004 at all educational levels. ITiS educated teacher work groups, invested in schools digital infrastructure in all Swedish municipals (http://www.kks.se/templates/ProjectPage.aspx?id=4144) and the result indicates that ITiS brought about rejuvenation to school work, as a result of ICT use in combination with problem-based learning.

ICT in teacher training – The Swedish Knowledge Foundation are at the moment investing over 10 million Euro to enhance ICT in teacher training which is the second largest ICT-project ever in education in Sweden. The project is made in collaboration between universities, municipalities and industry with the aim to make the future teacher digitally competent to be able to attend to the commission to contribute to students´ and schools´ development (http://www.kks.se/templates/StandardPage.aspx?id=12749).

Microsoft's innovative school program – Microsoft has created The School of the Future and knowledge from that school is now a basis for a world wide program where Microsoft cooperates with 12 schools around the world (http://www.microsoft.com/education/schoolofthefuture/overview.aspx) to develop ICT as a pedagogical tool.

Research Projects

LearnIT -The Knowledge Foundation developed a special research program on the relation between ICT and learning. It supports exchange of knowledge between higher education, society and industry. LearnIT also

work to enhance ICT in further education and develop ICT research at new universities. It develops results and knowledge from earlier Swedish ICT investments and is responsible for spreading this knowledge in society. During three years LearnIT supported more than 10 large research projects on for example working life, school, university, libraries, on-line (http://www.learnit.org.gu.se/forskning/forskningsprojekt) communities and health care. In 2009 LearnIT will publish three volumes based on research results from these projects. One of LearnIT´s projects is *Digital Learning Resources and Learning Design Sequence in Swedish Schools – Users´ Perspective*. The purpose is to deepen the understanding of how digital media are used as a resource for learning in education. The study shows that teachers´ interventions can be both supportive and preventive. Students are in need of more conceptual, meta cognitive, strategic, emotional and technical teacher support. Teacher themselves are in great need of support. ICT opens up for both possibilities and restraints for collaboration. Students are transforming the subject as they are working with it on the Internet. They create their own learning path and digital media's semiotic resources have a massive affect on their knowledge.

Young net cultures -from 2008 the Knowledge Foundation is financing nine large research projects where researchers, youth and companies such as Pirate Bay, My space, a rock band, Telia Sonera and Ericsson are cooperating. The project aim at finding how to use young peoples natural ICT habits to enhance learning and to develop new methods for education (http://www.kks.se/templates/ArticlePage.aspx?id=13384).

Women creating knowledge on the Net. Computer based further education for teachers -studied how First-Class can be used to for bridge distances. It shows that the women appreciated distance studies since it is flexible and involves a fellowship. They felt that the written communication developed their knowledge despite difficulties to establish co-operation. The study shows that distance education can be a gender-trap as it allows women to combine unpaid housework with both paid work and studies (Wännman Toresson, 2002).

ISSUES

As described in this chapter Sweden is viewed as a high-tech country with a top rank in e-readiness. Despite this it has recently been discovered that ICT tools in school and the motivation to use them is surprisingly low.

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There are lots of on going educational ICT initiatives to maintain Sweden's competitiveness but as Sweden is decentralized most of them are not national. Differences are therefore vast between different municipals, cities and schools which might be a reason for us not performing so well in international comparative international school tests as one might think we would. There is a current political discussion about the implementation of a national ICT agenda in Sweden but so far all different levels produce their own ICT agenda. To mention an example, the capital of Sweden, Stockholm City, has developed what they call a "future document" for schools and pre schools. It is a hands-on ICT strategy for reaching an ICT mature education and it is organized in seven items:

- Coordinate different schools´ ICT development
- See to that ICT objectives are attained
- Develop on the basis of needs of activities and users´ contributions
- Prioritise ICT tools
- INSET on the basis of every day ICT work
- Use ICT based routines
- Guarantee ICT based activity solutions (Stockholms Stad, 2008).

Another interesting project is "School 2021", initiated by among others the Swedish government, industry, municipals and the Swedish Educational Broadcasting Company. All participants agreed on that ICT is the strongest individual factor to affect the future in Swedish schools (Tiberg, et al. 2006).

Swedish teachers do not have the digital competence needed to meet these demands and at the moment a great deal of research and development money is spent to make future teachers digitally competent. Swedish studies show that poor results can be improved for entire schools if ICT is used more strategic and systematic such as mandatory ICT use in all subjects and an ICT focus in teacher training (Myndigheten för skolutveckling, 2008).

Swedish research show that the role of both teachers and student is changed and will keep on changing in the ICT environment. The relationship will be more horizontal and students will be producers rather than consumers of knowledge (Selander, 2008). It is a fact that ICT has revolutionized education generally, and especially distance education. Sometimes distance education is referred to as the education mode of the future, maybe because

of its impact on people that would not have been able to attend to class education. Collaboration between teachers and students is the big issue in distance education at the moment and it pursue with the fact that a lot of money is being raised at the moment to explore communication on the web.

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CHAPTER-36

eLEARNING IN SYRIA

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ABSTRACT

The Information Age, the digital knowledge, the knowledge society, knowledge economies and cyber schooling have by the beginning of Third Millennium intensified in speed, working space, quality content, and human concerns. They are now looked upon as a measurement index for locating the ranks of nation states on the ladder of current world civilization. While developing countries (DCs) in general spent the second half of the twentieth century in consuming what the industrial nations are producing in the fields of information and communication technologies (ICT), they (the DCs) launched very recently however, several pursuits in this decisive sphere, not as much in the industries of ICT but rather in their applications to business, management, production, education, recreation, and more. Syria, in recognizing the ultimate importance of ICT for:

- advancing into the Information Age,
- realizing the welfare of it's people and economy, and
- measuring well on the scale of info world civilization, had made significant strides in integrating ICT into the management and work of private and governmental organizations, businesses, industries, communications, and education.

In fact, Syrian Virtual University (SVU) is the first to none until this date in Arab Middle East. SVU has fame in on-line education, and attracts students from all over the world. As such, this chapter endures the purpose of the current Book in providing a real picture of Syrian applications of ICT into

education, thus clarifying Syria ICT status comparable to other nation state world wide.

COUNTRY

Syria, or Syrian Arab Republic (Tore Kjeilen, 2009; www.wikipedia.org; HowStuffWorks.com.; www.ibe.unesco.org), is a Middle Eastern country located in southwestern Asia, at the eastern end of the Mediterranean Sea and occupies part of the ancient Fertile Crescent, the center of early world civilizations. Due to its strategic geographic location and to breeding and hosting several civilizations, Syria continues to be the focus of transit trade among many countries of the Middle East and abroad, and to be a vital factor in Arab and world affairs.

Figure 1.
A Map of Syria

Arabic is the official language of the country; and modern Syrian culture is based on the Islamic faith and civic Arab tradition. Strong moral and ethical values are placed on family, religion, education and self discipline and respect.

Economically, Syria has notably improved its status since the early 1950's by means of five-year consecutive developmental plans. But one fundamental development project in Syria was the building of the Euphrates Dam which affected profoundly all major changes ever occurred in agriculture, industry, and other main sectors of the economy. Further, Syria has launched lately economic reforms including cutting interest rates, opening private banks, a stock market exchange, and relaxing regulations on foreign investments.

EDUCATIONAL SYSTEM

Education is the State Responsibility
Article 33 of the Decree Law No. 208 of 13 March 1973, which embodies the Constitution of the Syrian Arab Republic, states: "Education is a right guaranteed by the State, free at all stages and compulsory in the primary stage and efforts shall be exerted to extend compulsory education to higher stages. The State supervises and directs education in order to ensure its adaptation to the needs of society and production" (www.ibe.unesco.org).

Current educational Priorities and Concerns
Since 1963, education has been at the core of State's attention, and is considered a determining factor in the socio-economic progress. Expenditure on education increased considerably since that time.

The government exerts great efforts to further democratization of education (i.e. compulsory education at the primary stage, free education at all stages, eradicating adult illiteracy, extending access to education) and to the process of developing educational structures, contents, and regulations in order to improve quality and performance so as to attain the educational goals within the framework of the State's general policy.

The government is also committed to developing educational management, enhancing the potential of the educational staff through pre- and in-service training, updating methodologies and technologies, devoting more emphasis to research and experimentation, developing the educational assessment process, and introducing computers and information technologies into the heart of educational activity. All above educational concerns are embodied in the following current priorities:

- Fostering the teaching of computer science;
- Developing vocational education in terms of requirements and plans;
- Training teachers for all stages of education at the university faculties of education and training centers (www.ibe.unesco.org).

Syria has a good basic education system (syrianeducation.org.sy; www.maps of world.com; http://en.wikipedia.org) despite being a relatively low-income country with a growing population.

The government adopts the philosophy that education is basic to human, economic and social developments. Since 1967, all schools, colleges, and universities have been under close governmental supervision to ensure both above philosophy and the quality of education.

Education (ec.europa.eu/education) is free and compulsory from ages 6 to 11. Schooling consists of 6 years of primary education followed by a 3-year general or vocational training period and a 3-year academic or vocational program.

The second 3-year period of academic training is required for university admission. Total enrollment at post-secondary schools is over 150,000. The literacy rate of Syrians aged 15 and older is 86% for males and 73.6% for females.

Types and Stages of Education in Syria
These types and stages are sorted according to age and purpose. Thus appear as follows (www.mhe.gov.sy/; syrianeducation.org.sy):

Pre-school education: Pre-primary education (kindergarten) serves children aged 3-5 and lasts three years. Pre-primary education is not compulsory and is provided on a fee-paying basis.

Primary education: Primary education is compulsory for all children aged 6 and lasts six years.

Secondary education is also free and lasts three years and holds two sub - interweaving stages: junior (Intermediate) and high schoolings as practiced in western education. Syria Intermediate or middle school education which is according to Law No. 32 of 2002, is part of the basic free and compulsory

schooling, lasts three years. At the end of this stage, successful students are awarded the Basic Education Certificate.

Figure 2.
Structure of the education system of Syria
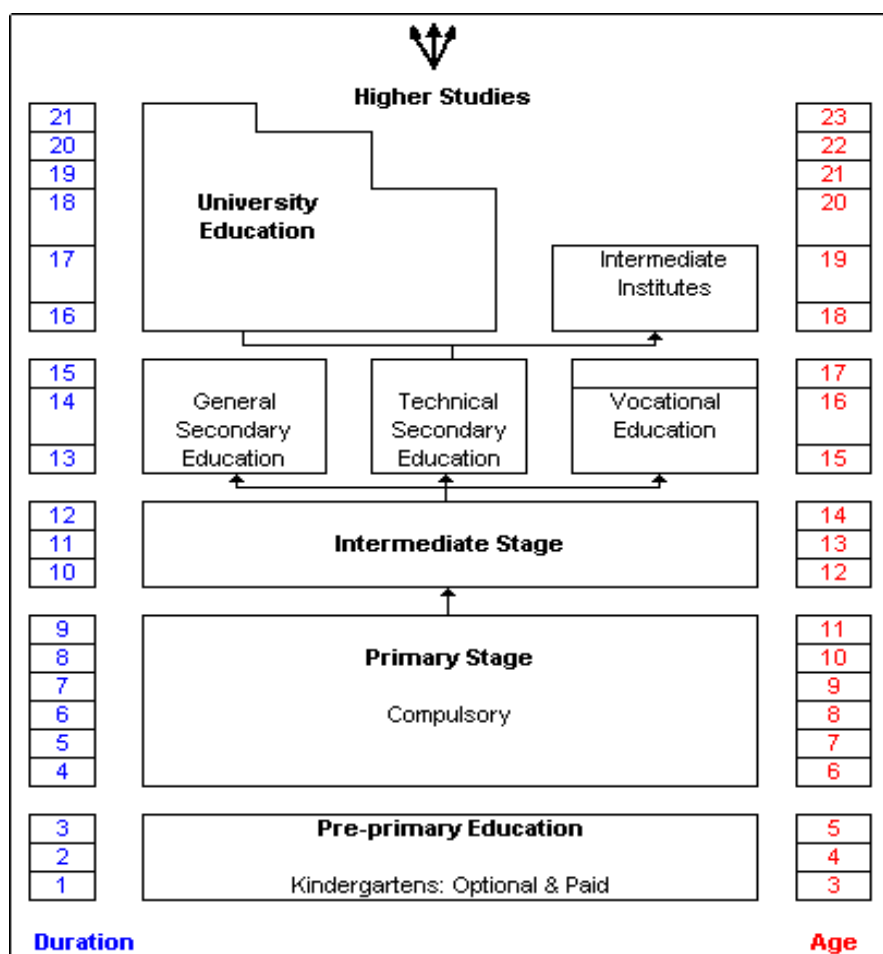
Vocational secondary education (lasting three years according to the nature of vocation and training requirements) and technical secondary education (lasting three years) follow the intermediate stage. Technical secondary education comprises the following studies: technical industrial, commercial,

and technical education for girls. Vocational secondary education comprises industrial and vocational education for girls.

Postsecondary Intermediate Education students who pass the baccalaureate exam (general or technical) can attend postsecondary intermediate institutes. Intermediate Teacher Institutes train assistant teachers and physical education teachers. Intermediate Technological Institutes comprise: industrial intermediate institutes, for students who have passed the technical industrial baccalaureate exam; banking commercial intermediate institutes, for students who have passed the commercial baccalaureate exam; and girls' technical intermediate institutes, for girls who have passed the girls' technical secondary education exam. The duration of studies is two years. Admission to the two-year higher institutes under the Ministry of Higher Education is limited to graduates of general secondary education.

S**pecial education** Pupils with different handicaps talents attend ordinary primary school unless there is a certain reason that invalidates this rule. In this case, those pupils are admitted to special schools and institutes controlled by the Ministry of Social Affairs and Labor.

Private education comprises: schools sponsored by independent individuals or societies. Several types of these schools are available such as: kindergartens; primary, intermediate and secondary schools; vocational, technical and language evening laboratories and centers); and foreign schools established in accordance with Law No. 167 of 1959, with their own curricula as well as two Arabic classes per week, for non-Syrians and non-Palestinians.

Adult and non-formal education: The Ministry of Culture (Gennaoui, 1995) is in charge of co-coordinating all programs and administering literacy classes. Other technical ministries and agencies involved in literacy training and professional projects are: the ministries of Social Affairs and Labor, Agriculture and Industry; the General Federation of Women's Trade Unions; farmers; and students.

The Ministry of Social Affairs and Labor provides, through its community development centers, courses and activities such as home economics, nursing education, veterinary medicine, and film shows. The Ministry of Agriculture provides long- and short-term training courses for illiterate farmers above 16 years of age, while the Ministry of Industry is in charge of several vocational

training courses for literate adults. The Ministry of Public Works also operates several centers for accelerated training in the building and construction trades.

Computer Literacy at Schools: This contemporary ambition focuses on making computer literacy mandatory at the high-school level and English- and French- language instruction compulsory in the elementary schools. It pays attention too to equipping students with computer and language skills in order to modernize the economy through the education system.

Higher Education: Holders of the "Baccalauria" (general secondary diploma) may enter universities according to their marks and within the quotas specified by the Council of Higher Education.

The duration of undergraduate programs leading to the award of the license is between four and five years (six years in the case of medicine), depending on the field of study in the different faculties. At the postgraduate level, the 'magister' (the master's) degree is usually awarded after three years of study. The school year consists of thirty-two working weeks (not including examination periods), divided into two equal terms at all stages.

Most universities in Syria follow the French model of the high education, the university stages and the academic degrees are briefly (www.wikipedia.org):

- University level, first stage -License/Bachelor. The License/Bachelor Degree is awarded after four to six years study depending on the subject:
- Four years for Arts, Humanities, Law, Islamic Law, Economics, Social Sciences and Fine Arts.
- Five years for engineering, Architecture, Agriculture, Pharmacy, Dentistry and Veterinary Science.
- Six years for Medicine leading to the License/Bachelor of Docteur en Médecine.

University level, second stage–Master's Degree, Postgraduate Diploma. The Master's Degree is awarded after a minimum of two years' study beyond the License/Bachelor Degree. A Postgraduate Diploma is conferred after one year's further study. University level third stage–Doctorate. The highest University Degree is awarded after three years' study following the Master's

Degree. It involves personal research work and the defense of a thesis. There are more than 17 state and private universities currently operating in Syria.

The Ministry of Education is responsible for pre-university education, defines the educational policy, and translates the educational plans into reality. Five deputy ministers assist the Minister of Education and each one supervises a number of directorates and technical offices. The Ministry of Higher Education is responsible for universities, some intermediate and higher education institutes, and post-graduate studies. The process of planning and definition of academic programs is centralized, while implementation is decentralized. Coordination is ensured by the Council of Higher Education, chaired by the Minister of Higher Education.

In addition, the Ministry of Higher Education supervises all intermediate institutes through the Supreme Council of Intermediate Institutes.One significant merit characterizes Syrian public education is being free of charge for Syrian students from primary, intermediate and secondary up to university bachelor's, master's and doctorate degrees. State budget is the main source for financing education at all stages but the contribution of the private sector is negligible (Kabbani and Salloum www.erf.org.eg/...Syria.pdf.

DISTANCE EDUCATION

In general, distance higher education in the Arab countries comes in three different institutions: traditional universities open or distance education universities, and online universities (Amel Ahmed, *Spring 2005*, www.westga.edu/~distance). All these methods apply to Syrian case in distance education.

Most Arab states including Syria have been unable to meet the needs of all students desiring to pursue their careers due to dramatic increases in student enrollment accompanied by insufficient resources. For this, the 1998 Beirut Declaration of the Arab Regional Conference on Higher Education calls for utilizing modern information and communication technologies in offering courses and degree programs through unconventional means like traditional universities, thus breaking the educational barriers of space and time" (UNESCO,1998).

Distance education was limited in Syria until late 1990s when the Ministry of Education focused only on traditional forms of instruction. Educational

television and programming are the responsibility of the Ministry of Education's Directorate of Teaching Technology Center, which develops and produces educational resources.

The televised programs have primarily been used to provide general information or series of programs designed to introduce and teach computer applications. However, Syria by the beginning of the third Millennium worked heavily for establishing distance education programs adopting two mechanisms for this purpose:

Open Learning Centers in 2001
These centers are permitted to award Bachelor's level degrees with majors in English translation from Al-Baath University , in information and translation from Damascus University , and in law studies from Aleppo University (2009 (http://olc-albaathu.com/ ; aleppo-olc.com).

Online University Distance Education
In this regard, Syria by means of the Ministry of Higher Education, erected in September 2002 the first online university in Arab World naming it Syrian Virtual University (SVU). SVU (web site is http://www.svuonline.org.)   Is expected from the start to provide world-class education without boundaries, internationally accredited degrees, and to link the Arab region with the western world (Mohamed, Spring 2005, op.cited).

Syrian Virtual University (SVU)
SVU is fully accredited and endorsed by the Syrian Ministry of Higher Education. The primarily goals of SVU are to provide Arab students worldwide with a world-class quality education at home through an integrated online learning environments by utilizing international experiences and the latest technological and educational advances. Further, the Syrian Virtual University has a unique role to exercise in establishing and promoting a new educational culture in Arab Middle East, that is: Lifelong Learning.

To keep up with the academic and quality standards practiced internationally, SVU concluded an agreement with the UK Open University; followed by agreements with western leading online universities in Canada, Europe, Australia, and the USA. The intention of SVU management behind these mutual arrangements is to offer programs to Arab students with the same academic qualifications. Further details are concerning SVU Learning Management System, Student Information System, and Academic Programs.

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will be presented in next paragraph: E-Learning and ICT Integration (www.svu.org/; www.virtualcampuses.eu, www.arabicnews.com; www.araboo.com) in Syrian Education

Syria Informal Open / Distance Education
More education in Syria occurs daily by informal open and distant means like libraries, computer and language centers, and non-profit organizations (education.stateuniversity.com/Syria). Libraries in Syria are open educational centers supervised by the Ministry of Culture. There are over 300 libraries in Syria. The major public libraries are the National Assad Library in Damascus and the university libraries in Damascus and Aleppo.

The first academic library was the Medical College Library in Damascus. In addition to providing library services, Syrian libraries organize and present a range of cultural activities such as lectures, workshops, training course, art exhibitions, and shows of educational movies.

American Middle East Educational & Training Services, Inc. (AMIDEAST), a private nonprofit organization based in Washington, DC, was founded in 1951 to promote cooperation and understanding between Americans and people of the Middle East and North Africa through education, information, and development assistance programs. The site in Syria opened in 1955, closed in 1967, and reopened in 1978. The Syrian Computer Society was established in 1989 as a non-profit organization to promote and to contribute to the diffusion of information technology in Syria. The organization provides different levels of training programs that are open to the public; offers training programs for profession; and organizes workshops, seminars, and conferences.

Challenges facing Distance/Online Education in Syria
A Syrian scholar summarizes the challenges facing distance/online education in Syria as follows (Abdul-Wahed, May 2006 css.escwa.org.lb):

- Poor Expenditure on Education
- Huge Number of Students needing Higher Education
- Selection according to student score, Not preference
- Incompatibility with Market Needs
- Migration of "Brains" to foreign countries.
- Low Quality of Education of both students and professors.
- Traditional Style in Teaching.

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More principal shortcomings from which Distance/ online Education in Syria is suffering, related to Internet Access (www.svuonline.org; Bender, October 004, www.technologyreview.com; Gould, 2003)*. In this regard, one of the issues which face the SVU is the lack of a proper broad-band Internet infrastructure in Syria.

This can be viewed as a strategic problem, as it hinders potential students. Faced with the terrible performance of the teleconferencing software on Dial-Up (then the only available option), the university created a number of tele-centers in various Syrian Directorates so that students who didn't have broadband Internet could attend their lessons comfortably. With the introduction of ADSL and ISDN in 2004 however, it was hoped that the severity of the problem would be eased. Unfortunately, the situation has not improved much: up to the end of 2007, ADSL is not yet available to students and the general public. ISDN, while difficult to attain in many areas, is more publicly available than ADSL, and thus is the only option for Syrian SVU students who wish to attend lessons from their homes. Most Syrian SVU students, however, attend their lessons from a local tele-center.

TECHNOLOGY AND ICT

Educators are often accused of resisting the change, especially in applying ICT, comparable to their colleagues in fields like economics, aviations, and communications. They are commonly hesitant to indulge using information and communication technologies in schooling on claims of preserving societal culture, traditions, values, local identity and so forth.

Recognizing the importance of culture for the successful implementation of information and communication technologies (ICT), a study **(**Albirini**,** 2006) was conducted to explore the cultural perceptions of high school EFL (English as a Foreign Language) teachers in Syria toward ICT. Using both quantitative and qualitative research methods, the study sought to determine the teachers' overall perceptions of ICT as influenced by their national culture as well as school culture(s).

The findings point to a notable conservatism in participants' perception of ICT in education and society at large. Teachers were mainly concerned about the morally damaging effect of ICT (particularly the Internet), its inattentiveness to their cultural and language needs, and its growing primacy at the expense of other societal needs.

The participants urged as a result for the creation of local computers and software that would better serve identity and culture. The implications of the findings are discussed.

Similar acknowledgment of the ICT value and this time for the field of special education was confirmed by a Syrian professional (Nabil Eid, May 5th, 2007). http://www.digitaldivide.net/). He called officials to take the following actions for the successful promotion of ICT to advance special needs education (SNE):

- Establish national dedicated agencies for ICT in education and development skills.
- Establish support services that work directly with teachers – trainers and pupils within in disabilities students and handicaps.
- Establish specialist resource centers where volunteers and teachers obtain advice materials and information.
- Establish specialist regional working groups. Establish specialist websites and online networks.
- Establish support for in school- training and streaming ICT in SNE training". Establish national dedicated agencies for ICT in education and development skills.
- Establish support services that work directly with teachers – trainers and pupils within in disabilities students and handicaps.
- Establish specialist resource centers where volunteers and teachers obtain advice materials and information.
- Establish specialist regional working groups.
- Establish specialist websites and online networks. Establish support for in school- training and streaming ICT in SNE training".

Integration of Internet ICT in Syrian Education,
Businesses and Daily Communication
The importance of ICT for advancing human daily tasks was recognized by a group of experts who gathered 2008 in an international conference to discuss the topic: government and Administrative Simplifications.

The third adopted recommendation of the conference, states: "The use of information and/ communication technologies (ICT) tools. Generalizing e-government or the digitalization of the administration provides better access to services, information and procedures" (www.oecd.org)

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ICT and e-Communication in Syria

Syria has the most regulated telecoms sector in the Middle East. Fixed-line services remain the ownership of the State Telecommunications Establishment (STE). STE is investing in upgrading and extending its network and aims to gain 100% coverage by end-2013. Fixed-line subscriber numbers are still rising and although penetration rates are low, they are higher than in many more wealthy Middle Eastern countries. Two Build-Own-Transfer operators, Syriatel and MTN Syria, provide mobile services. Syriatel is locally owned and MTN is a subsidiary of MTN of South Africa, which gained ownership through its purchase of Invest COM (Paul Budde Communication, 2009).

ICT and the Internet Use in Syria

For internet usage, a senior Syrian official in the field of communication announced (www.ArabicNews.com)*, details of a national initiative to boost internet dissemination in Syria, expecting subscription to reach at 20% in 2013 and to bringing the internet in every Syrian home. Dr.Nibal Idlbi told that the new program to build information and communication sector in Syria has aimed at improving the infrastructures of information technology in a way that suites Syrian needs. The project includes four sub-programs, the first of which aims at boosting the spread of internet in Syria by utilizing the national data exchange network. She expected subscription in the internet to reach at 20% in the year 2013 and added that the second program guarantees Syrians the right of data privacy of individuals as well institutions.The third program is to put rules to regulate data profession while concentrating on software's industry and its requirements. Meanwhile the fourth program seeks reactivating the common internet program in cooperation with the private sector to install it in every Syrian home. Internet by Satellite is considered as a revolutionary solution to the areas that face difficulties in receiving land communication.

Table 1.
Internet Users in the Middle East

Middle East	Population (2009 Est)	Usage in December 2000	Internet Usage Latest Data	% Population (penetration)	User Growth (2000-2009)
Syria	21.76.978	30.000	3.565.000	16.4%	11.783.3%

* The Middle East Statistics were updated as of June 30, 2009
* Internet Users in the Middle East comparable to the World as of Dec. 2008, are: 45,861, 346 = 2,9%%

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This service is of interest for economists and those who need high speed access to execute work in education and other working fields (www.ArabicNews.com). With all professional efforts to boost the integration of internet technologies into Syrian institutions, businesses, homes and daily life communications, Internet World Statistics gives the following Internet use and penetration rates per population (www.internetworldstats.com).

Looking further at the Internet user growth, the table shows that it has doubled during the period of 2000-2009 to 11,783.3 %,, the highest percentage ever achieved by any Arab State. In fact, this exceptional percentage Internet user growth indicates how much the government and civil society are effective in integrating ICT into public as well as private institutions and daily life activities; and too how highly promising will be the role of ICT in the making of Syria education in the future.

E-LEARNING AND ICT INTEGRATION

A General Look at the Developments of E-Learning
"Man who had confined his schooling from the era of Plato with needs on earth, had entered by the last mid-twentieth century the space-electronic age. Consequently, his psycho-social, economical, material and educational needs for a productive schooling seem to have been changed. The reason beyond these profound shifts in living priorities is that the cognitive, life concerns, as well as the behavioral fields in which man operates have extended to infinity" (Hamdan, 1999)**.**

As a result, the new Millennium has witnessed accelerating advances in economic, social and political globalization,, and in the rhythm of Information and Communication Revolutions which subsequently led to what is currently called the Information Age and Knowledge Society. All these changes have proved conventional schooling not only obsolete physically, but also invalid in its educational mission, goals, content, curricula, instruction, assessment, management and the quality of student graduates. Conventional educational institutions at both school and university levels, if persisting, are serving at best the welfare of generations and society in the fifties of the past twentieth century **(**Hamdan, 2008).

One notable eastern country: Malaysia recognized early the crucial role of ICT in the social, economic, administrative reforms on both societal and

governmental levels. By the end of the twentieth century, Malaysia put into effect 1991 a strategic ambitious vision called 2020, to indulge ICT into the lives of people, the works of institutions, the processes of education, and the policies and actions of the government.

The ultimate goal of the ICT Vision as Prime Minster Mahathir Mohamad the vision's creator and maestro) stated, is enabling Malaysia to transform from a developing into a developed country (www.dailyexpress.com.my).

While the 2020 Vision has marked by this date 2009 two thirds of it's march toward success, it attracted early attention world wide for technological and economic reasons (HighBeam™ Research, Inc. 1993).

While the Malaysian government went ahead in implementing the "ICT 2020 vision" following thoughtful and carefully sequenced plans, education had experienced profound shifts by introducing the new "Smart School" in which conventional learning transited to an online activity (e-learning). It is projected that e-learning in Malaysian schools and universities will become within next 6 years (2009-2015) more viable and prevailing due to current ever developing technologies coupled with the broadband via FTTx technologies, mobile broadband such as 3G and beyond, and the Next Generation Networks (NGNs)" (Hamid and Anwar, 2000).

Due to different emergent geographical, political, educational, military insurgencies, health or economic reasons, e- learning has become a global concern (Bender, 2004).

E-Learning and ICT Integration in Education- the Syrian Experience
Syria introduced ICT into education and public institutions in a later time after Malaysia, but has similar ICT action story. As the case of Malaysia, the initiative of ICT integration plan was governmental, launched by the Head of State Dr. Bashar Al- Assad and supported by international agencies like the UN and some world business groups.

At 2001, Syria with the collaboration of UNDP identified a coherent strategic program to use Information and communication technologies to further needed socio-economic developments. The program spelled out six major interweaving interventions with an emphasis to develop infrastructures and professional capacities for effective use of ICT as a tool for human development. These interventions are:

- "Assessment of the suitability of the current and future ICT developments in the country to serve as a tool for human development,
- A financial mechanism to ensure the proliferation and sustainability of telecenters, using the franchise model,
- Development of the information content relevant to local and national
- human development requirements, through a development portal,
- A model Mobile Internet Unit to serve as a bridge of information into remote areas until the overall proliferation of the tele-centers and ICT in general,
- Policy advise to ensure that the national ICT strategy whether on infrastructures and application are in line with the needs of human development, and
- Training and capacity building in areas of ISP management.

A Partnerships with public and private institutions will be critical to the success of the program" (UNDP Syria. (http://www.undp.org.sy). SYR/02/001.

Government policies directed to e-learning in Schools and universities
Action policies taken by Syrian Government toward utilizing ICT in e-learning in schools and universities are briefly (Najib Abdul Wahed, 2007):

Legislative Changes Affecting the ICT Sector and Implementation:
- Implementing and activating intellectual Properties Laws
- Organizing the processes of exporting & importing software/hardware.
- Legislating relevant laws governing the distribution, exchange and protection of data.
- Encouraging and organizing investment in the ICT sector.
- Organizing and regulating e-Commerce and e-Trade and benefiting from the experience of other countries in this field.
- Legislating relevant laws authorizing and regulating the usage of electronic signature and its use.

In education:
- Integrating IT curricula, information, and usage in all levels of formal education.

- Initiating and supporting training and continuing education programs to eradicate PC illiteracy on the national level.
- Supporting the utilization of existing infrastructure and facilities in rural areas to initiate training programs.
- Supporting the initiative of the "Popular PC".
- Supporting the "Mobile Internet Unit" Main objectives of the Higher Education Policy set out in the 10th National 5Y Plan include
- Expansion of ICT access to tertiary education.
- Promotion of ICT responsiveness to the needs of the economy and society.
- Improvement of ICT governance and accountability procedures within the institutions.
- Development of ICT innovative and relevant modes of learning and teaching.
- Achievement of effective quality assurance.
- Enhancing the ICT quantity, quality and relevance of scientific, basic and applied research.
- Promotion of ICT entrepreneurship and innovation skills within graduates to stimulate their capabilities in creating self-jobs.

Table 2.
Single and dual-mode public colleges and universities

University	City	Established	Students	Open Learning
Damascus	Damascus	1923	110.000	37.012
Aleppo	Aleppo	1958	65.000	26.552
Tishreen	Lattakia	1971	40.000	12.145
Al-Baath	Homs	1979	30.000	11.405
T O T A L			**245.000**	**87.114**

Source: Abdul-Wahed and Al-Awa, 2006

Applications of ICT in e-Higher Education of Syria
The Application areas of ICT, Levels of ICT integration, and procedures used for Integrating ICT in Higher Education, appear in the following paragraphs (Abdul Wahed, 2007):

Application areas of ICT in Higher e-Education
- Teaching, Learning and Research; Introducing On-Line Courses
- Contents provision;
- Professional tool for future labor market;

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- Administration and Operational Management;
- Tactical and Strategic Management;
- Collection, dissemination and exchange of information;
- Support for conduct and management of research;
- Transformation of library to an Information collection, processing, compiling and dissemination unit;
- Establishment of "online Universities"

Levels of ICT Development in Higher e-Education
- Single Computer with Dial-Up facilities
- Local Area Network (LAN) in a location for   all users
- Local Area Network
- Campus Area Network
- Library LAN
- Internet Connectivity of Campus Network
- Wireless facilities for quick deployment
- Full Click Universities

Procedures for Integrating ICT into the Functions of e-Higher Education
- Entry (teachers teach students to use IT)
- Adoption (teachers use IT to support traditional instruction)
- Adaptation (teachers use IT to enrich curricula)
- Customization and implantation (IT is integrated and used for its unique capabilities)
- Innovation (Development of new learning environment using IT as a tool): On-line courses, Distance Education, Virtual Learning.

The Syrian Virtual University- the Ultimate
Application of ICT in e-Learning
Syrian Virtual University (SVU) (www.svu.org; www.virtualcampuses.eu retrieved on July 2009; (www.arabicnews.com; www.araboo.com), is an integrated online educational institution that allows for some conventional university environment, with overwhelmingly features of the latest technological applications of the SVU provides World-class online education for Syrian and Arab students at home; and offers Accredited American, European and International degree and certificate programs at : diploma's, bachelor's, and master's levels.

The student support services are maintained by online community of Arab Professors and experts worldwide. Management System is characterized by the following features:

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- Compliant to emerging standards in learning systems like IMS and SCORM
- Configurable to suit any type of learning situations including informal learning opportunities
- Supports different business models of learning service providers
- Flexible content and course structure
- Enrollment can be at any desired level in the course structure
- Handles all known forms of multimedia
- Floatable and collapsible menus provide user-friendly interface
- A variety of learning resources
- Instructors can sequence the content browsing so as to enable learner-specific learning paths
- Personalization ensures most relevant content, FAQs, forum threads are made available
- Asynchronous and synchronous communication tools enable effective collaboration between learners and instructors
- Powerful/advanced search engine to search learning resources within the system
- Learning activities on the system can be tracked and managed by authorized users

This system provides instant statistical data concerning any factor, process, or outcomes related to SVU. For example, if asked for general data of the Spring semester, 2009,, the SVU Student Information System will show the following:

2-year Undergraduate Programs (High National Diploma-Associate degrees: A, AS, APS,) **HND**. HND stands for the Higher National Diploma in Computing and Business Applications.
4-year Undergraduate Programs (Bachelor's degrees: BA, BS, BBA, BIT, BGS,)
Postgraduate Programs (Master's degrees: MA, MS, MBA, MIT,)

The Syrian Virtual University Partnerships
- Baker College Online
- Bellevue Community College
- Bellevue University
- Ohio University
- Canadian Virtual University
- Columbia University

- Cornell University
- Edmonds Community College
- MMU
- Edexcel

With the third millennium, Syria embarked on administrative reforms involving all governmental institutions and services. Decisions were taken in this respect for (Abdul Wahed, 2007; Hassan, July 2009, www.unpan.org):

- "Updating laws and regulation and eliminating all bureaucratic barriers prohibiting national and foreign investments
- Administrative reforms through training and recuperating Human resources.
- Creating Administrative information centers for decision support systems in all ministries
- Creating either a central committee or high committee to put the strategy for e-transformation
- Updating laws and procedures of the banking systems
- Updating and modernizing education and higher education, especially programs of e-learning and continuing education
- Increasing the role and involvement of all information mediums (public and private) in the processes of good governance".

Examples of concrete projects & programs resulted from ICT integration strategy, are:

- Strengthening the Institutional Capacity of the Peoples' Assembly.
- E Strategy for Syria.
- Strategic   program for socio-economic development in Syria.
- Support to Administrative Development.
- Project implementation and coordination unit.
- The Electronic Library.
- Syrian Virtual University.
- E-Village.
- Syrian Higher Education and research Network (SHERN).
- The National Number Project.
- H-Card: also known as the Smart Health Record.
- Virtual Museum.
- literacy eradication.

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Barriers handicapping ICT Integration in e-Education (Central Bureau of Statistics, 2008; KABBANI and SALLOUM, 2009; and Nabil Eid**, 2007).** One Syrian ICT professional writer however, cautions from several barriers that stand against the integration of ICT in education. These are:

- Diffused responsibility for policy implementation of ICT.
- Lack of information on needs and requirements of schools and pupils upon which to base ICT policy initiatives.
- Limited finances supporting different aspects of provision or funding.
- Lack of specialist teacher training and limited options available for training.
- Limited availability of specialists in hard and software resources.
- Lack of formal national support infrastructures for ICT.
- Insufficient number of qualified specialists at regional level.
- Limited availability of information specialist (particularly online) resources.
- Lack of communication facilities in some areas.
- Poor spending. Despite serious governmental efforts to increase spending on higher education, but remains 2007 below the world average.
- Unemployment of university graduates which reached at 27% males and 30% females.
- Irrelevant training for ICT literacy and skills.

The 10th national plan for Higher Education aims at enabling the needed infrastructures for courses and research while enhancing institutional and individual capacities. ICT tools are being increasingly provided to university students and staff, but equipments are only one factor necessary for ICT integration; the more crucial is the relevant training of teachers and students to make the best use of the new tools into their everyday teaching and learning activities.

RESEARCH and TRAINING in E-LEARNING

At the pre-university level, the Department of Planning and Statistics and the Department of Curriculum and Research (of the Ministry of Education) are in charge of educational research and studies. Research at the university level is accomplished and supervised by faculties as a part of graduate programs, especially at the master's level mandated by Syrian Virtual University (SVU)

(Gennaoui, 1995, op. cited). On another hand, Tempus organization (http://ec.europa.eu/tempus) has launched jointly with Syrian Government and Ministry of Higher Education, several programs for the modernization of Higher Education in Syria. A sample of undertaken studies and projects in this regard, are:

- Micro-Finance at the University (JEP -30003)
- Developing an MSc Curriculum in construction Management, 2003 (JEP-30047)
- Quality University Management and Institutional Autonomy, 2004 (JEP-32120)
- Development of the Mechatronics Curriculum., 2004 (JEP- 32164)
- Innovative and Integrated Approaches, Methods and Tools for Mediterranean Forest Ecosystem Management, 2004 (JEP- 32028)
- Occupational Medicine Training Course, 2005 (JEP-33042)
- New Medical Curriculum at Syrian Universities, 2006 (JEP-34006)
- New MSc Curriculum in TeleInformatics, 2006 (JEP-34030)
- Education in Road Safety supported with ICT, 2006 (JEP-34042)
- Development of an M.Sc. program in IT management in Construction at Damascus University, 2006 (JEP-34054)
- Establishing a strategic framework for electronic libraries in Syrian Higher Education, (SCM – M030A06, 2006).

On another hand, additional attention is given to the investigation of possible challenges which could threaten the credibility of online educational institutions in Syria. Research and case studies were conducted by scholars at both local and international levels.

Hala Dalbani for example investigated the Support for distance learners at the Syrian Virtual University (Dalbani, 2008); and Albirini, based on Sponsorship of Syrian Ministry of Education, June, 2006, searched the missing element in the implementation of ICT in developing countries, that is: cultural perceptions.

It concluded that cultural perceptions should improve for the integration of ICT to be possible (Albirini, 2006, http://ijedict.dec.uwi.edu). Further, Aczel and Hardy (Aczel, and Pascale 2007) investigated three distance/online universities: the African Virtual University (AVU), the Arab Open University (AOU) and the Syrian Virtual University (SVU).

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The results of the case study support the claim that outdated 2rd and 3rd ICT generations deems insufficient for students learning, since they neglect the social and individual aspects of students. Other local professionals (Al-Badowi and Celebi, 2009; Abdul Wahed, 2007; and Sheikhalard, 2007) searched constrains experienced by distance and online institutions, especially the case of SVU. They found:

- Not Satisfactory English level for most of A-HND students.
- Insufficient students learning of English through virtual classroom.
- Poor voice quality due to outdated existing infrastructures.
- Delay in project execution due to training of tutors and learners (Computer illiteracy)
- Learners lack of motivation which is the driving force of self paced learning.
- Deviation from SVU model.
- Insufficient E-content.

They presented however some recommendations for improvements, appear as follows:

- Providing more Options for continuous human training and development of the university staff and in the marketplace.
- Improvement of Academic content to update the workforce's knowledge and skills.
- Dissemination of World-class education beyond campus limits.
- Continuous updating of Modern Technology and Educational Methods.
- Availability of Wide range of specializations.
- Provision of Work and study programs at the same time.
- Provision of more students' interaction: Peer-to-peer learning, Self-learning, and Learning from Experts.

CONCLUSIONS

Syria is a civic country rooted deeply in the early glorious B.C history. Records in this regard go to the fifth millennium B.C. and beyond (University of Chicago News Office.. Dec 16, 2005). In education, Syria is seen one of best within Arab Middle East to have a well planned, managed, guided, and accountable quality system; despite the tight budgeting and the

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highly growing birth rate population. It is generally evident that people in charge of steering the system at different administrative levels are concerned for realizing the mission and priorities embodied in the government educational policies. This optimal statement of the good will applies also to the sector of communication and technology. As a result several breakthroughs are observed in the integration of ICT in education and communication fields, beside others.The Ministry of Higher Education (MHE) is exerting every effort to insure quality and modernization in programs and projects offered in it's mandated institutions. For this end, MHE is collaborating with national (public and private) and international partners like the European Union and UNDP. MHE tends to achieve soon by these partnerships the following priorities **(**europe-education-formation, www.europe-education-formation.fr/**):**

- The establishment of new institutions, faculties and programs within existing institutions.
- New admissions policy congruent with academic standards, potential students need, and national development needs.
- Developing existing Curriculum and implementing a dynamic flexible rules for their continuous revision in response to social and market needs.
- Continuing the process of the establishment of Quality Assurance and Accreditation System.
- Charting executive plans for the purpose of upgrading the skills of Academic staff.
- Upgrading the enabling environment through the provision of the needed tools such as: labs, modern libraries, network connectivity, etc..
- Revamping academic research and graduate studies programs.
- Upgrading of vocational and educational training institutes.
- Sector restructuring to enhance governance and introducing updated management information systems.
- Establishment of effective statistical matrix which is important for planning at the strategic and policy level.

Some examples of the remarkable advances in regard of ICT integration is the exceptional percentage Internet user growth of 11,783.3 %,, the highest ever achieved by any Arab State. More over, Syrian Virtual University (SVU) was erected 2002 as the first quality online university in Arab Middle East:, resembling from it's start the professional standards and methods

practiced by comparable world on-line higher education institutions in Canada, England, Australia, south Africa, France, U.S.A, and many others. SVU according to one source is "a world class university education at your fingertips" (www.uksna, www.uksna.com). It is observed that SVU keeps endeavoring for better standards, practices, and building it's educational fame. One can find in this regard, study programs in Quality Management (for the master's degree), and a fundamental department within the University devoted solely for the issue of Quality Assurance. The Department spells out its mission in the next statement (www.svuonline.org). The task is to implement the internationally recognized quality assurance measures which include the identification of the intended learning outcomes, the continuous assessment and development of the curricula and the supervision of the teaching methodology used and the teachers' performance besides giving both tutors and students the needed support to ensure efficient teaching and learning.

The QAO also decides on and approves all forms of assessment including choosing the most appropriate forms of assessment and monitoring the process of entering exam questions on the assessment management system and reviewing questions to ensure that it is appropriate to the students' level of competency. The QAO also supervises the process of teaching staff recruitment and arranges for new staff training, and monitors staff development. Moreover, the QAO ensures that the quality of IT support and resources are sufficient to facilitate the teaching learning process and to realize the intended learning outcomes".

Finally, to insure the quality of Syrian e-education within the coming years, the following recommendations are offered:

- keep up with the quality work standards practiced by "first class" e-university world wide. Update and improve where deems beneficial.
- Keep updating the professional knowledge, skills, and attitudes of instructors, tutors and other faculty members. Any negligence in this regard, educational messages to students either reach poorly or never reach at all.
- Guide, train, and help students improving attitudes and skills as successful e-learners. Some of these are (en.wikipedia.org): using software tools, mastering new study habits, help accessing on line academic resources, building confidence to do well, building

learning and achievement motivation, building excellent time management skills.

- Keep updating the equipments, services, and facilities of e-education to guarantee the flow of effective learning- teaching messages.
- Keep updating the academic programs of study offered to students in lieu of their professional needs and contemporary developments of market place.
- Apply more formative assessment techniques of students' e-learning and achievement. While administrators can with summative evaluation recognize failing and succeeding students, formative assessment benefits teachers and students in building interactions, attitudes, learning, and teaching activities for better achievement results.

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CHAPTER-37

eLEARNING IN TAJIKISTAN
E-Learning and ICT Development in Education

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ABSTRACT

In a country once devastated by a civil war during the mid-90s as it was Tajikistan, a new economy and new challenges have been brought through the beginning of the twenty-first century. As Tajikistan steadily recovers from economic and social collapse, government, civil society, and the private sector are all looking for ways to accelerate development. One of the avenues for recovery has been put in Information Communities Technologies (ICTs) and the benefits expected from them.

In the present chapter, we concentrate on the efforts sustained in Tajikistan to introduce and spread the use of ICTs in the classroom in particular and in education in general. Although the wide spread of new technologies is a relevant issue at educational policy level, however, main challenges and resource constraints abound. These in turn are hindering the maintenance of a steady pace of technological development in the country. We describe, hereunder, the current status of ICT development and elearning in Tajikistan.

COUNTRY

Tajikistan is a small, landlocked mountainous country located in Central Asia - bordering Afghanistan (1,206km, south), Uzbekistan (1,161km west), Kyrgyzstan (870km, north) and China (414km, east). In total, 93% of the land is mountainous. With a population of around 7 million, 72% lives in rural areas while the rest in urban areas - mostly in the capital Dushambe. Native inhabitants of Tajikistan are Tajiks. They constitute the majority of

the population (80%) although they live together with representatives of more than 100 ethnic groups (e.g. Uzbeks, Kyrgyz, aygurs, Russians, etc.).

Figure 1.
A map of Tajikistan

In September 1991 Tajikistan declared its independence from the Soviet Union. The Constitution of the Republic of Tajikistan was adopted in 1994. The highest legislative body is called Majlisi Oli. Since 1994 the president is Emomali Rahmonov.

The country is implementing significant changes to its education system which are all derived from Tajikistan's independence as a result of the break-up of the former Soviet Union and the subsequent civil war (1992-1997). Unfortunately one of the aftermaths of the civil war was a massive outflow of the most qualified part of population. Qualified people are likely to emigrate for better opportunities: rates of return from skilled people will in the mid-term come back as remittances to the country, but the economic and social situation in Tajikistan remains critical and at a very low level.

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Tajikistan is one of the poorest countries in the world and ranks 113th among 175 countries according to the UNDP's Human Development Report 2003.Being Tajikistan a low income country, after the initial economic collapse which followed independence and the civil war, signs of recovery were seen again in 1998 and since then the country has experienced continuous high growth rates. GDP growth has been robust at about 9% per year on average during the last five years (remittances from labour migrants represent 40% of the GDP).

However, the remittances sent back are not used to invest in the country, because the money is urgently needed for consumption issues to sustain the families of the migrant workers, most of them are in the Russian Federation and Kazakhstan. Inflation has dropped from 38.1% in 2001 to 7.1% in 2005, increased to 10.2% in 2006 with an 8.5% in 2008 and a prevision of 7.5% in 2009 (Economist Intelligent Unit, Country Report 2008).

During 2008 and 2009, Tajikistan has experienced multiple stresses, compounded by the global food crisis and the global economic recession. The extremely harsh winter of 2007-08, combined with power shortages and high fuel prices, has already imposed great hardship and rising expenses on the population, particularly in rural areas.

The sharp rise in prices of imported food has exacerbated the difficulties faced by poor people. A large increase in the price of bread, for example, generates a particularly negative effect on the living standards of the already poor and disadvantaged population. Moreover, the economic recession in Russia or Kazakhstan has forced many Tajik people to lose their jobs and go back to Tajikistan. At a steady official unemployment rate of around 2-2,5% until 2006 this official figure must be seen in relation to migration and high levels of underemployment in the informal sector. Consequently, these figures may have considerably soared after the global crisis of 2009. This in turn has put Tajikistan in an economically very unfavorable situation since the labour market is not capable of absorbing the current working age population. It is thought that only 20-30% of the existing industrial potential is being used, meaning that the industrial sector still does not create enough jobs for the labour force even less for those returning migrants.

In short, unemployment, migration, low salaries which affect the education sector, lack of preparation for new skills, lack of opportunities to make career, weak linkages of output to the domestic economy, weak

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infrastructural capacities of the industry and an over-dependence on industries like cotton and aluminum are all factors that hinder the development of higher and vocational education in Tajikistan.

EDUCATION SYSTEM

Education has always been among top priorities in Tajikistan, and the country tries to continue that tradition in spite of dire economic circumstances. The Constitution of the Republic of Tajikistan is a major guarantee on ensuring equal opportunities of men and women in the sphere of education and science. In its article 6 any institution of science and education of any property form (both public and private) are obliged to ensure equal conditions for men and women regarding access to main, general, secondary professional and higher education, to all forms of professional education and qualification for advancement and to participation in the fulfillment of educational and scientific progress. The Constitution also recognizes the right to a free education.

Within Central Asia, Tajikistan is one of - if not - the most severely affected in terms of poverty due to a lack of resources, the weakness of the state and ministerial authority, and regional fragmentation. Tajikistan was the poorest republic in the Soviet Union and was completely dependent on federal subsidies, and ranked lowest in educational development, especially in secondary and tertiary education and research. The situation became even worse during the civil war of 1992-1997, and has remained unstable in part because of the ongoing violence and the drug trade flowing out of Afghanistan. This situation has influenced cutting expenditures in education. GDP per capita in 2006 was 358 USD according to World Bank data for Tajikistan. Domestic and international attention on the depths of the systemic crisis that hindered education started with the preparation of the UN's Millenium Goal on Education for All in 1999.

The impact of the civil war of 1992-1997 led to a substantial cut in educational expenditures which subsequently impacted negatively on student attendance and brain outflow. Moreover, most of the teaching materials have been used since old Soviet times. Teachers' salaries are well below consumer basket minimum; that is why many teachers have fled to other countries in search of employment and career opportunities.

The latest educational system structure is oriented towards a 12th grade general education for students from 7 to 17 years old. Grades 1 to 9 are compulsory. Between the ages of one and six pre-school children are expected to get basic care and to prepare for school, i.e., acquire some reading and writing skills. Professional education would include a primary professional (mostly vocational) education, 1-4 years of training; a secondary professional education, 2-4 years of training. Higher education would consist of 4-6 years of training. In 2002, a two-tier education system was introduced, consisting of a bachelor's degree (4 years) and a master's degree (2 years). However, in 2003 the Ministry of Education decided to reinstate the Soviet-style system, i.e. the specialist degree requiring 5 years of study. The current reform is oriented towards a three-cycle model followed by Bologna and widely implemented in Europe. The process transformation to a 3 cycle structure will be able to offer specialists, bachelor and master students. Currently universities are transforming to a credit system (ECTS-like) with some pilot projects in several HEIs for the period 2008-2012. Additional or continuing education is offered in grade schools, institutes of professional education and other educational institutions.

Oppositely to Kyrgyzstan there are around 30 higher education institutions with many of them located in the capital Dushambe. There are at least 16 universities (plus branches), 12 institutes, 1 private institute and 3 Academies. Among total number of teachers in higher education only 6,3% are doctor of sciences and 29% candidate of sciences (PhDs)(cf. Tempus).

Table 1.
Number of HEIs and students in Tajikistan

	Number of institutions	Number of students (.000)	Number of teachers
Vocational	72	25.0	3,120
Specialized professional ('tekhnikums')	50	29.2	2,660
Higher education	38	108.0	6,056

Source: Tajikistan country case study, UNESCO, 2007.

The governmental policy in the field of the higher education is based on the following principles: equal access to higher education for all -with special emphasis on female equality; identification of priority directions for the development of research, technologies, training and retraining specialists; civil education; protection and development of achievements and traditions of higher education; integration of the Tajik higher education system into global education; development of life-long learning into the education process; State support for training specialists in fundamental and applied sciences research. In support of the achievement of these goals, there has been a significant level of international support, including the usual programs from UNICEF, Open Society Institute (Soros Foundations), USAID especially through its PEAKS (*participation, education and knowledge improvement for schools*) program, ADB, ETF with assistance on vocational education and the European Commission through its Development and Cooperation Instrument (DCI). Despite the efforts at funding education from other sources through non-governmental inputs, the motivation of the population, and the transferring of funding responsibility to local authorities the financial gap cannot be covered. Likewise, corruption is thriving.

In this sense, according to Transparency International, Tajikistan occupies 142th place out of 163 on the corruption country list. One of the reasons may be the centralization of the process of administration and exam organization, which encourages corrupt practices, a lack of transparency and monitoring system and indeed lack of funds for example to cover teachers' decent wages.

The key issues facing education in Tajikistan are not only the insufficient funding of education and the ineffective system of financing but deficiencies in reform planning and implementation. Although the reforms in education are considered a high priority in the country (they are endorsed by the Government, the President and the Minister of Education), policy-makers struggle with a severe lack of policy-making skills, such as professional analytical and strategic planning capacities.

Even if many initiatives have appeared in recent years, these deficiencies have meant that Ministries' concept papers on education and reform plans are mostly perceived as declarative documents and letter of intention stating broad and general goals without clear strategies to carry them out.

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As consequence of lack of funding we could observe as general pattern that course content is not properly oriented and its quality is not satisfactory. Likewise, curricula and student assessment is outdated. One of the major changes has been the attempt to decentralize curriculum in order to give HEIs more freedom in deciding locally appropriate content for their courses. In practice, however, most HEIs are unable to develop and implement their own curricula components due to financial constraints, lack of technical resources and skills, and teacher shortages. Even if many teachers would like to develop materials, they lack the necessary training to do so. Only a few universities are innovators in curriculum development. Programs like Tempus have helped in this direction but only few HEIs have benefitted from it.

In recent years the Ministry of education of Tajikistan has worked out main priorities in reforming the higher and vocational education in the Republic of Tajikistan. A strategic direction for long-term reform of the educational system in Tajikistan 2006-2015 has been established herein. It focuses on 3 main priorities: improved higher education management; syllabus upgrade and a review of priority subjects, relevant for the country's economy; and more efficient and equitable funding systems for higher education institutions.

Together with the Strategic Directions of Long Term Reforms of Educational System of Tajikistan for the years 2006-2015, the Government has adopted the National Action Plan for Reform of Initial Vocational Education and Training (NAP) for the same period in which it defines several reform issues for the near future. VET is organized by the Ministry of Education who is in charge of the sub-sector since the end of 2006. In December 2006 the responsibility for initial VET was transferred from the Ministry of Labour and Social Protection to the Ministry of Education. The Ministry of Labour and Social Protection remains responsible for Employment, Migration and Adult Education, which includes training for unemployed and re-qualification with a particular focus on migrants – declared to the authors its deputy Minister Mr. Ashurov. The Ministry of Education is now starting to develop a comprehensive policy for technical and vocational education and training.

Vocational education and training was slower at initiating policy reform. With the support of the ETF, the Ministry of Labour and Social Protection began discussing more fundamental reforms in 2003 with the development

of a new concept for initial vocational education and training. This work was followed up in 2006 with the Government National Action Plan for the Reform of the Initial Vocational Education and Training System in Tajikistan. Key policy issues addressed in the Plan include the content and organization of education processes, the structure of qualifications, adult education, social partnership, VET system management and quality control, the links between the labour market and migration and international and regional cooperation.

DISTANCE EDUCATION

When the national concept of education in the Republic of Tajikistan was developed in 2002 distance education as a form of additional education was designed with the purpose of strengthening the basic knowledge, adapting the individual to the new social environment, physical and mental support of the individual in the new conditions of production relations, and effectively spending free time for the development of the science and production. The additional education should be offered to all citizens regardless their age and age limits.

This form of additional education was envisaged as a mean for specialization according to which citizens are involved in certain activities in order to improve their knowledge, experience and skills by attending the seminars, special up-grading courses, academy, institutes and universities, educational centers and distance learning centers.

Thereafter, together with the strategic direction for long-term reform of the educational system in Tajikistan that was established for the period 2006-2015, long-term strategies for implementing distance learning in higher education for the period 2003-2013 were proposed as well. With this strategy the government attempts to establish new standards of education from other Central Asian countries, to ensure and guaranty low expenses and high education scale in the country.

Distance education can surely serve as a mean of enhancement of opportunities for students in remote areas, and giving a chance to educate students in fields which do not exist in republic.

Distance education makes possible to ensure education to various strata of society, to women, invalids, inhabitants of rural areas and former soldiers.

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Given that one of the priorities of the government is to improve the quality of education, this is provided by a function of the teaching and learning process, and defined by the pedagogical approaches adopted. At present the country's schools still use old and conservative methods of formalized textbook based teaching.

A wide variety of innovations need to be introduced into education system to improve the quality of education provided. Also special strategies such as distance learning, mobile classes and multigrade learning, and pedagogies associated with these approaches, which have been successfully experimented in other countries, may be more relevant for Tajikistan.

One of the objectives before 2015 is to introduce new technologies and methodologies in the education process. The development of a legal regulatory basis for the use of distance education is in process. The Centre of Distance Education is functioning from August 1999 in Tajik Technical University. 84 students nowadays are studying in Moscow University of Economics, ICT and Statistics (Russia), from which 16 students are already studying a second profession.

Presently Technical University of Tajikistan (TUT), University of Technology in Tajikistan (UTT) became a member of association of "Virtual University of Europe and Central Asia", it includes 35 Higher Educational Institutions of other countries too. For achieving better progress results in distance education it is necessary to solve several objects as first steps to establishing the system:

- Creating national program of developing distance education in the Republic of Tajikistan
- Creating a national system of distance education on the basis of educational materials, books and other data
- Creating upgrading and equipped, man Centers of Distance Education in all regions of Tajikistan, giving in this way equal possibility for education for all levels of population.
- Creating network of Centers of Distance Education which combines territorial and different levels of education having possibility to move to a broader globe scale.
- To involve investment of capital to covering shortage of resources of Government budget.

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For developing and spreading using ICT in larger scale together with TARENA, GIPI on the basis of Technical University of Tajikistan in 2002 was held seminar on "Utilizing ICT in education". More than 20 teachers of different universities took part in the seminar. The main object of the seminar was–advantages of using ICT in educational sphere, recommendation and strategies were figure out for HEI and for Ministry of Education (http://www.tajik-gateway.org).

Some examples of distance education can be observed with initiatives of the Ministry of Education and the British Council to provide open learning to teachers of English language. There is a strong desire on the part of the Ministry of Education in Tajikistan to reform the INSETT especially in higher education. The demand for English has been growing in all spheres of life in post-Soviet Central Asian countries over the last 12 years since independence.

Consequently, the demand for qualified teachers of English is becoming even more urgent. However the current situation in English language teacher education does not meet the growing demand. In 2005-2006 a small scale piloting of individual activities with the introduction of in-service distance training course materials was implemented in one center in Tajikistan.

As result of the pilot project, as one of the English teachers from Khujand State University put it "taking into consideration the condition of teaching contexts in our countries- poor teaching resources, outdated textbooks, teacher centered classes, old traditional methods and methodologies of teaching English -this type of projects would assist them to improve the process of teaching English and teachers would benefit of the outputs of the project".

Within this context it is widely recognized that there is a great demand for retraining the teachers of English in Tajikistan.

Education experts say that innovative programs, like distance education, could be one of the answers to education pains in countries such as Tajikistan. Distance education, based upon new information technologies, offers an opportunity to "reach the unreached," explains Dr. Mikhail Karpenko, rector of the Moscow-based Modern University of Humanities (MUH). MUH has tens of thousands of distance education students throughout Russian and former Soviet states.

The university, which is also mulling projects in China, has set up an outlet in Khujand, Tajikistan, recognizing the high potential for distance education in this mountainous country.

TECHNOLOGY AND ICT

Tajikistan's telecommunications network is arguably the least developed of all the countries that emerged from the former Soviet Union. With a telecom network that was near total collapse, the government has started the daunting task of bringing it to modern standards. Following a decision of Government to restructure the telecommunications sector which was made in 1996 the Ministry of Communications transferred all operational functions in the field of telecommunications to the newly established Open Joint Stock company "Tajiktelecom". The separation of ownership, management and regulatory functions was being further developed by transforming Tajiktelecom into a commercial company that has to follow certain development objectives defined in the license and laws and is regulated by a telecommunications regulatory authority. A gradual process of liberalisation is under way and a number of private operators have been allowed to enter the telecom market since 1996, notably in the mobile and Internet sectors. Despite the Ministry of Communications remains the policy development body for the communications sector. An independent regulatory authority was created based on the State Inspectorate of Communications at the Ministry of Communications.

The Regulatory Authority fulfills all regulatory functions, e.g. tariff regulation, licensing, frequency administration and enforce the communications legislation.

In October 2001 a loan to finance essential investments in fixed-line telecommunications network infrastructure of OJSC "Tajiktelecom", the national incumbent operator of Tajikistan was done by EBRD an international financial institution that support developing countries both in Europe and Central Asia. The project aimed to improve access to and the quality of basic telecommunications services. Bank funds will be used primarily to procure digital switching and transmission equipment for Dushanbe and regional centres. Apart from improving telecommunications services, especially for businesses, the loan conditionality focused on sector reform, including a new telecommunications law, transparent licensing procedures, and tariff reform and establishing an independent regulatory

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framework. Making a phone call in Tajikistan became a much simpler task as a result of an EBRD investment in the country's telecommunications system. Although the EBRD loan is supported by a sovereign guarantee from the Republic of Tajikistan and is used to make urgent investments in new digital infrastructure, equipment for the widespread application of per-minute call charging, new international connections and improvements in power supply arrangements in rural areas, currently, still relatively few people has a telephone and the system is difficult to maintain.

The PSTN (public switched telephone network) was renovated on the basis of digital technology in 2003. Equipment SDH of system STM-16 which is installed at all Automatic Telephonic Stations of Dushanbe city organizes a fibre optic loop (or ring) 320 streams of 2 Mb/sec. Total length of cable grooming in the city is 43,8 km. Currently there are 316 telephonic stations functioning in the republic, 80 from which are digital, 236 are analogous. General capacity of telephonic stations is 280 282 numbers (source: Ministry of Telecommunications, 2008).

More foreign investments may bring an improvement in the quality of service and will increase access to services for both business and the general population. The Regulatory Development Programme has made significant progress in developing a modern legal and regulatory framework. The privatization of the state-owned fixed-line operator, Tajiktelecom, has been planned. Despite exponential growth in the mobile sector, total fixed-line and mobile teledensity was estimated at barely 10% in early 2006. Mobile growth was continuing to move ahead; after the subscriber base more than doubled in 2007, it was continuing to expand at an annual rate of more than 50% in 2008/2009.

Tajikistan has 9 cellular operators in GSM and CDMA standards. These companies are CJSC «Babilon-M», CJSC «Indigo - Tajikistan», JV CJSC «Somoncom», CJSC «TT - Mobile», CJSC «M.TEKO», «Takom» LLC, CJSC «Telecomm Technology», «Babilon-T», CJSC «TK – Mobile» and other companies provide cellular services and Internet service in Tajikistan. The government welcomes this development and will foster further market opening. For the International Voice service, the government started full liberalization in 2006.

Alternative international gateways will be permitted and international service providers will be required to offer non-discriminatory access to their

gateways. International service providers will be required to support the financing of Universal Service. While the countries of Central Asia have struggled with poor telecom infrastructure and underdeveloped regulatory, one segment of the market that has been most adversely affected has been the Internet.

With none of these countries having Internet user penetrations higher than 10% at the end of 2006, the race is now on in each of the markets to build increased capacity to access the Internet. Tajikistan with Internet user penetrations of less than 1% by end-2006 are the lowest ranked by this measure and certainly have a huge task ahead of them. Right across the sub-region, Internet access has been predominantly provided as a dial-up service. The first signs of higher speed, broadband access services are evident in a number of the markets, but the total broadband subscriber base remains very tiny for the time being and therefore constitutes only a small proportion of the total Internet subscriber base in this country.

The most popular satellite service in Tajikistan is a broadband two-way satellite transfer system (VSAT), which provides quality access to the internet in even the least accessible areas. It not only provides an internet connection but also a wide range of additional services. Satellite service providers in Tajikistan offer the following services: two way internet broadband accesses, VSAT Private Network, broadcasting services, SCPC/SCPC, SCPC/DVB, MESH services, STAR/DAMA, VSAT Mini Hub Solution, VNO and many more. TS2, a service provider, for example provides in Tajikistan new mobile services. BGAN deliver seamless network coverage across most of the world's landmass. Users are able to get broadband wherever they go, not just in major cities or airports. BGAN is currently accessible in Tajikistan, Europe, Africa, the Middle East, Asia, North and South America. TS2 provides also voice communication in Tajikistan via global Iridium network.

Despite technological process is continuing at a steady pace, access to information and communication tools are limited, with only an estimated 38 people out of every 1,000 having private access to a telephone. Moreover, the existing telecommunications system is prone to breakdowns and is in dire need of upgrading. Tajikistan was the last country among the former East European countries and the Commonwealth of Independent States (CIS) that was connected to the Internet. At least 2 Internet service providers and several cellular telephone companies of limited range operate in the country.

Internet use among Tajiks has been increasing, but remains relatively low (1.19 percent) despite government efforts to make information communications technology (ICT) a pillar of national development Technological progress in Tajikistan is growing mainly thanks to the efforts of government and international donors. Nowadays the number of users of Internet in Republic of Tajikistan is 484,200 Internet users as of Dec/08, 6.7% penetration rate, per ITU.

Table 2.
Internet Usage and Population Statistics:

YEAR	Users	Population	% Pen.	GDP p.c.*	Usage Source
2000	2,000	6,702,382	0.1 %	US$ 410	ITU
2005	19,500	6,702,382	0.3 %	US$ 1,060	ITU

Note: Per Capita GDP in US dollars, source: United Nations Department of Economic and Social Affairs.(source: www.internetworldstats.com).

According to the Ministry of Communication (2008) the number of users internet at home is 0,4% (estimated forecast -4 %). For insuring general access of Internet for everyone Points of Shared Access are being created up to 237.

More than 1 million people used their services in 2006. Nowadays the computers in Tajikistan numbers 100 000 PC, it means 1,4 computer per 100 inhabitants. Resources of Internet are developing fast enough.
Many web sites are being created, but the form and substance is basically dedicated to social and political subjects.

More than 2000 sites are open by domain .tj in Tajikistan. 37.5 % of governmental organization of total number of organizations have their own web sites. And the number of organizations which have their own website is 0,4 % from governmental organizations. The density of web sites in internet is 0,03 to 100 inhabitants of republic.

Many organizations are installing local network. Analysis held in state run public authorities showed in 2006, the level of using local network in governmental organizations is 34%, 22% have corporate computer network.

Local access for the population of Tajikistan and for adoption domestic electronic circulation of documents standard coding was created and confirmed, besides keyboards of computers in Tajikistan was adapted to UNICODE for users.

The rate of expansion of Internet services will no doubt increase on the back of the wider push to improve the overall telecoms capacity and infrastructure in each market. Although the pace is variable across the markets, there is certainly a consistent commitment to developing the national networks.

Of course, it is not simply a matter of increased investment in infrastructure. There also needs to be a commitment with regard to regulatory reform. Interestingly, the Internet market has experienced some distinct challenges in this regard, as some of the governments have seen online access as a specific threat to national security and good order of their respective countries.

The lowly penetrated Internet market in Tajikistan has been subjected to tight government restrictions and limitations on access, no doubt helping stunt the growth of online activity in this country. According to Buddecom in 2006 there were barely 1000 people subscribed to internet services. Yet as Garth Willis (2006) suggests geography is not the only real obstacle for technological development.

The mountain/lowland digital divide may stem from the technical challenges for connectivity in the mountains, to the lack of infrastructure such as irregular electrical supplies and impassable roads, to the lack of trained personnel for training and maintenance of IT infrastructure.

The need for teacher training centers in Tajikistan is not only the result of the geographical landscape of the country but also of the low standard of living. It is almost impossible for many people to leave their communities to obtain special education.

E-LEARNING AND ICT FOR EDUCATION

Education is one of the sectors to whom governments should pay attention in order to enhance the level of human development. Educational system in Tajikistan was characterized by wide scale of coverage and literacy. In recent years the number of pupils that quitted the studies has increased namely due to poverty and shortage of educational facilities in families.

There has also been a decrease in attendance of primary and secondary schools and in the quality of education.

Few rural areas are covered by the local internet service providers because of little or no paid demand. It is known that to be able to compete in modern market it is necessary to know not only foreign languages, but also to be acknowledged with computer sciences.

At present numerous private centers exist to teach job skills using personal computers, taught by experts from other institutions. Pedagogical high schools in the country do not prepare qualified teachers to use ICT. There is no public elearning center in Tajikistan and the only academic network on distance education does not use ICT. Considering the issue of information technological knowledge it is fair to point the problem Tajikistan faced during its transition to a market economy was that a big amount of professional staff moved from the country. This was due to the economical crisis and civil war in the country during the 90s. Outflow of skilled personnel, was 40 % and had a tangible impact on educational sphere and communication field as well.

At present there is great demand in personnel in communication field, therefore the number of student applying to ICT faculties is significantly increasing.

Presently Technical University of Tajikistan (TUT), University of Technology in Tajikistan (UTT), Tajik National State University (TNSU), and Russian-Tajik Slavic University (RTSU) are preparing professional in engineers of connection and communication systems; professional in Information Technologies, automatized control system and information processing system, in software; systems engineers and others (from http://www.tajik-gateway.org).

As regards to the technological development in educational Institutions, during the reporting period of 2003, the Ministry of Education, in association with other ministries and authorities, prepared legislation for 11 projects to be enacted by the Government of the Republic of Tajikistan.

One of these projects consisted of the installation of computers in primary and high schools in the Republic of Tajikistan for 2003-2007.

Table 3
Distribution of computers in HEIs of Tajikistan (2003)

Regions	Totas number of schools	Number of schools with computer classes	Number of computer cleasses	Number of computers
Regions under republic subordination	1118	52	52	281
Khujand	317	14	14	58
Khatlon	1248	127	127	734
Sogd	886	171	171	651
Dushanbe	174	102	102	770

The Presidential reform to install computers in primary and secondary schools by the year 2006 has begun to be implemented. At the present time, 781 computer classes have been equipped with 11351 computers in comprehensive schools, 4573 are the most modern and up-to-day.

Today, in some Dushanbe schools, 100% of the required computers have been installed. In Sugd oblast, 37% of the required computers have been installed and in GBAO 90% of the required computers have been installed. In the regions surrounding the capital, 17% of the required computers have been installed (source: tajik-gateway.org). 368 teachers were trained in English language and computer courses.

The Ministry of Education and the Government of the Republic of Tajikistan have been received funding from a variety of sources. International organizations have been supporting projects related to providing computer literacy for needy segments of population in accordance with the Government policies.

According to initiatives provided by President Rahmonov, meetings of representatives from the World Bank, the Asian Development Bank, USAID, the Aga Khan Foundation and UNICEF were held to discuss improvements in education and the creation of public nodes with free access to internet for people with low income.

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A pledge of 200 million dollars was made by these agencies to fund these improvements. These funds have been used to repair and reconstruct schools and universities, sponsor-training workshops in the English language, provide textbooks and educational equipment to improve the educational level. The embassy of India in Dushanbe has provided 30 modern computers to the Center of Computer Study.

In summary, in 2003, 1900000 somoni were spent for construction and equipping schools, including 900000 somoni from additional Presidential funds.

The Islamic Development Bank provided funding for the reconstruction and rehabilitation of secondary schools in Tajikistan. Repair of six schools and one child's home have been completed.

Equipment supplied to these schools included 4230 tables, 8607 chairs, 479 blackboards, 1222 cabinets, 1952 units of sporting equipment, 39 computers, 26 video recorders, 7 photocopies, 6 video systems, 26 TVs, 76 air conditioners, 7 small telephone exchanges and other educational materials.

Grants from international humanitarian organizations to educational institutes and the budgetary allotments from the Ministry of Education have been used to purchase additional equipment and materials for schools.

These include 250 computers, 20 printers, 15125 student tables and chairs, 1505 microphones, 1500 posters of D.I. Mendeleev's Periodic Table, 27096 notebooks, 12466 pens, 5180 pencils, 764 blackboards, 15254 kg chalk, 60 class collections (each collection for 80 pupils), and 8 sets of furniture for the heads of schools. In the new development strategy of the Government of Tajikistan for Education ICT has a prominent role and importance.

Among the major objectives of the Ministry of Education we can cite:

- Set up on-going courses on studying and introducing of information communication technologies into education.
- Establish computer centers with access to Internet in educational facilities.
- Develop a program on the use of the new information technologies and innovative teaching methods as well as methodological materials on their introduction.

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- Implementation of a program on computerization of basic and secondary general schools for the period of 2005-2007 and development of a new program till 2015.
- Develop a comprehensive program of phased introduction of the technologies of distance learning.
- Establish in the Ministry of Education scientific methodological center for co-ordination of all methodological services, and also introduction of new technologies.
- Equip pedagogical and other higher educational institutions with computers.
- Develop the state computerization programme for higher education institutions.

CASE STUDIES

The Global Connections Program in Tajikistan
In the beginning of 2003, the US State Department funded Global Connections Program brought Internet access to schools in Tajikistan on a broad basis for the first time. The Global Connections program opened 26 Internet Learning Centers (ILCs) in regions throughout the country, with a focus on ILCS in rural and mountainous regions.

Each ILC is comprised of 8 -10 computers, an Internet connection, and 2 local staff members to monitor the equipment and develop education plans.

As stated on the State Department website, the goals of the Global Connections program were to empower youth to use technology to tackle universal issues such as gender equity, health, environment, diversity and human rights.

This program attempted to educate schools (as opposed to only individuals) to benefit from Internet access and resources by engaging participants in dialogue with the international community. Through this exchange of information, students are able to expand their world vision and gain perspectives that will help them succeed in the international arena." (US State 2006).

The Global Connections Program is one example of how ICT can be used creatively to address some of these barriers for social, economic and

educational development. The introduction of a network in Internet centers throughout the country provided a new way for the youth of Tajikistan to find connections, to make friends with peers from their own country that they have never met, to share stories, and to gain a better understanding of their place within their country, as well as the world.

The Global Connections program has given this opportunity to thousands of pupils, and while it is not a large enough program to reach all areas and schools of the country, it has shown the potential that Internet gives as a unifying force among the youth in this country. In the case of the Global Connections Program in Tajikistan, this meant a heavy investment in human resource development, online follow-up, technical support, the establishment of community committees, and routine site visits. With over 40% of the population of Tajikistan under the age of 14 social and economic progress will be difficult without tapping into the potential of youth in the country. ICT can be an engine of both economic and youth development.

Project for ICT in Rural Healthcare in Tajikistan
The project "ICT in rural healthcare in Tajikistan" has established telemedicine and communication links between two rural healthcare centers and a city hospital in northern Tajikistan.

The aim with the project was to provide not only means for reliable communication, information sharing and exchange of second opinion between rural and city healthcare workers, in order to build capacity and to increase the quality of primary healthcare services to the rural patients, but also to implement a test bed for telemedicine.

As a result of the project, fewer patients have been referred to the city hospital for diagnostics and treatment. The referral system between the rural healthcare centers and the hospital has also been improved and now suits the patients' needs in a more efficient way. The information flow between the city hospital and the rural centers has improved and as a result the rural healthcare workers have gained more experience and knowledge on e.g. medical treatment. The communication network has gained interest in the region and local branches of the national university, local governmental organizations and schools have planned to join hands, together with the Tajik counterpart, ShifoCom, in creating a regional network with access to the Internet and for sharing resources and knowledge.

Thanks to the SPIDER support, Karolinska University Hospital has taken a step to internationalize telemedicine and e-health activities, and to establish collaboration with emerging regions. Since 2006, five large-scale projects were initiated by Karolinska University Hospital in Tajikistan, in cooperation with Medical and Technical Universities from Tajikistan, Germany and Portugal.

Successful results shown in the projects so far have inspired the team at Karolinska to extend international cooperation with other Central Asian countries (Uzbekistan, Kyrgyzstan and Kazakhstan) and the Russian Federation. These projects are funded by the European Union.

The Project in Brief:
Partners: ShifoCom, Tajikistan
Karolinska University Hospital, Sweden
Aim: Increased access to qualitative primary healthcare for the rural poor in northern Tajikistan. Primary healthcare in Tajikistan is severely lacking human and financial resources and is considered to be of low priority when allocating the scarce resources available.

Enhanced knowledge sharing and information transfer among healthcare workers through appropriate technical solutions and necessary infrastructure.

Objectives:
- To provide ICT infrastructure between two rural healthcare centers and one city hospital
- To provide medical diagnostics equipment to the rural healthcare centers and the city hospital
- To train healthcare workers on the use and maintenance of the ICT infrastructure and medical equipment
- To provide the possibility for healthcare workers to participate in distance learning

Activities and results:
- Defining operational scenarios and developing architectural solutions. Organization of workshops at the centers for awareness raising and ensuring a participatory process. Developing a sustainability model.

- System requirements specifications and analysis of hardware and software requirements. Development of test-bed environment and software/hardware simulators.
- Procurement, testing and implementation of the communication infrastructure. A mixed solution between satellite communication and WIMAX was implemented. VoIP was also implemented.
- Purchase, testing and implementation of medical diagnostics equipment, including training on usage and maintenance of the equipment.
- System testing and clinical tests both by engineers from Sweden and by medical staff from the rural centers and city hospital.
- Development of training program and distance learning courses for healthcare staff (basic ICT, medical databases, online searching, essential medical informatics and telemedicine)
- *University of Central Asia (UCA)* The University of Central Asia was founded by an international treaty and charter in 2000 by the Governments of Kazakhstan, the Kyrgyz Republic and Tajikistan, and His Highness the Aga Khan. UCA was established to offer an internationally recognized standard of higher education in Central Asia and create knowledgeable, skilled and creative graduates who will contribute leadership, ideas and innovations to the transitioning economies and communities of the region.
- In Khorog, the UCA School of Professional and Continuing Education has begun offering training courses in English for Business, management accounting and accounting technology to employees of Afghan state and civil society organizations. Over 30 Afghan nationals have participated so far.
- Construction on a UCA campus in Khorog, one of three campuses to be built in Central Asia, is currently in process and is being designed for approximately 1,000 students and over 100 faculty members. UCA is in the early planning stages for a learning centre to be constructed in Faizabad, Afghanistan. It is also considering developing a distance learning programme that would allow UCA programmes to reach Afghanistan and other countries in the region.

Main Issues Regarding ICT in Education

As we reviewed in this chapter, one of the basic problems to address is the lack of infrastructure in the country, which in turn is connected to economic complexities experienced since the independence of Tajikistan.

Electronic and online distance learning in terms of development for education in a country like Tajikistan has until now had minor practice although, the current legislation and policy in the field of information-communication technologies encourages the employment of such technologies.

For example, the State Strategy of E-learning Development in Tajikistan "e-strategy", determine measures directed on creation of conditions and formation of the mechanisms, providing to assistance of development of an information society in the country considers the introduction of a system of open education with application of e-learning technologies at all levels.

Nevertheless, at the level of educational institutions, most of the undertaken measures are chaotic and have no permanent character. For example, most of HEIs have not developed themselves an e-strategy for the use of new technologies in education.

The only university-the Tajik Technical University (http://www.ttu.tj) which is rendering official services of distance education in Tajikistan and open education gives practically access to distance education together with HEIs of the Russian Federation, not on the frame of a national network-based system. This is an important remark, since such approach does not benefit the domestic market of education. Furthermore, it also weakens the position of domestic HEIs in the regional market once again proving to the superiority of foreign education. Herein, it is necessary to emphasize, that elements of distance education exist basically in joint Russian-Tajik institutes, faculties and branches of universities of the Russian Federation in the Republic Tajikistan.

Other key factor interfering introduction of distance education is observance, most likely not observance; intellectual property rights both HEIs and consumers of its services. The digital technologies used in many HEIs of the country are law quality and not necessarily licensed. Accordingly, resources created by many students of the given establishments not always are faultless that to expose them on the general review in a network. Education is critically important for Tajikistan's future because not only it affects all aspects of life but it is a significant contributor to country's sustainability.

At this point in Tajikistan's history, there is need for orchestrated efforts of the government, international donors and community to change the situation.

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The government on its own will not be able to make any positive changes without the assistance of international institutions and vice versa.Ignoring the passivity of educational institutions in questions of introduction of the given technology, citizens of the country use opportunities accessible in a global network for passage short-term and long-term, for example program PhD, rates more and more.

If not immunity of the universities on clearing from service in army similar rates would receive much more widely distributions that would promote growth of a competition on internal market of education. For now, universities enjoy existence of their microclimate, being comfortable, for the state and its citizens.

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E-LEARNING IN TUNISIA
E-Learning Challenges in the Millennium,Tunisia

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ABSTRACT

The purpose of this paper is to provide a general overview of the e-learning situation in Tunisia and a peek into specific e-learning initiatives conducted by both authors. Many support institutions have been put in place to oversee and assist with Tunisia's e-learning agenda: the Tunisian Internet Agency (ATI), Virtual University of Tunisia (UVT), the Tunisian Association for the Promotion of e-Learning (APREV), the Tunisian Association for Digital Solidarity, among others. The first author co-taught a course labeled Connect, Communicate and Collaborate with another two instructors. Forty-one students from different backgrounds and of different ages and interests participated in this course which used Moodle for disseminating course contents and Skype for communication. Course evaluation revealed both instructors and students lacked Moodle training. Partial success for this course can be attributed to hardware malfunctions and to the non-availability of a qualified technician at hand.

Additionally, Skype was not always the most optimal communication tool. The next experiment was conducted by the second author between 2005 and 2009 benefited 4th year and MA level students. This involved hosting different courses online coupled with face-to-face teaching. Three e-learning tools were used in this order: a basic internet classroom assistant called Nicenet, the more sophisticated and open source learning management system, Moodle, and finally a free 'Wetpaint' wiki.

Problems of access were most acute initially, with low bandwidth at the top, lack of open-access to internet-rich laboratories, and a low-level of technological savvy among students. With better technological provision, access to these courses increased dramatically.

Over and beyond the need for technology and training, the following conclusions stand out:

- it is useful neither for students nor for their instructors to wait until a very advanced technological infrastructure is put in place,
- free, easy, and unfettered internet access must be made possible for students both in the institution and in student residence halls;
- teachers and students must be re-trained to be ready for emergent instructional platforms,
- more research needs to be conducted to understand the nature of learning and collaboration in online environments, and finally
- as Palloff and Pratt pointed out, technology does not teach students; effective teachers do (2000).

COUNTRY

Tunisia is the smallest country of the Arab Maghreb Union, with a surface of 163.6 km2 and a population count of 10,400.000. It is bordered by Algeria to the west, Libya to the southeast, the Mediterranean to the north and Sub-Saharan Africa to the South.

Its strategic location at the crossroads between Europe, Africa, and the Middle East has made it a commercially, culturally and geopolitically-viable hub. With a recorded history of some 3000 years, Tunisia has witnessed waves of intermingling and conquests from the Phoenicians, the Romans, the Arabs, the Ottomans, the Spaniards, and the French, to name but a few.

The country gained its independence in 1956 after an 81-year history of French colonization, and has been a republic ever since.

While Tunisia is not as rich in natural resources as its neighbors, its standards of living are among the best in the developing world with an

average annual income per capita over $4,022 (US Department of State, 2009).

Figure 1.
A map of Tunisia

Source: *The World Factbook 2007*

According to *The Global Competitiveness Report* (2008-2009) released by World Economic Forum (2009 a), Tunisia tops the rankings among the North African countries at the 36th position out of 134 countries. The secret behind this reported success is that Tunisia has always put emphasis on its human capital.

EDUCATION SYSTEM

Since its independence in 1956, Tunisia has prioritized education and regarded it as a major factor in building a nation open to modernity, hence its

heavy investment in education. In 2005, for instance, the total public expenditure on education reached 20.80 % of the governmental budget - about 7.3% of GDP (UNICEF, 2008).

Tunisia's legal system provides for universal, compulsory and free basic education lasting nine years and guarantees enrollment for each secondary school graduate at a higher education institution. More than 99% of 6-year-old children enrolled at school in 2000-2001 and enrollment in primary schools for ages 6 to 14 represented 95.1% in 2005; moreover, the number of students completing secondary education which lasts four years after basic education has reached 1,100,401 in 2006 ("Education," n.d.).

Likewise, the number of students enrolled at university soared from 43.797 in 1987 to over 346.000 in 2005 (MHESRT, 2005). The World Economic Forum (2009 a) ranks Tunisia 17th in the category of "quality of the [higher] educational system", just after France and before Spain, and the 21st in the category of "quality of primary education".

As of 2004, Tunisia engaged an ambitious program of reform to fall in line with the LMD system initiated in the European Union since the mid-nineties. This reform was occasioned in part by the educational system's inability to secure employment for many university graduates as the number of young unemployed graduates from Tunisian tertiary institutions had nearly doubled in 10 years- 336,000 in 2006-2007 compared to 121,800 in 1996-1997 (World Bank, 2008) essentially due to an increasing university student population which is expected to surpass 40% of the global student population in 2010 (Dhouib, 2005, p. 29).

DISTANCE EDUCATION

There is a quite clear tendency in today's Tunisian educational policy to enhance e-learning and to keep pace with technological and pedagogical developments as practiced by the world's major universities.

In addition to being an attraction in and of itself, there is a shared understanding that e-learning will help solve the major problems facing higher education today, notably the high costs incurred as a result of the country's policy to secure enrollment for all secondary school graduates at university, and the urgency of being on a par with European and world

educational standards after the partnership with the EU and the subsequent integration of the LMD reform.

The first public virtual institution, L'université Virtuelle de Tunis, the Virtual University of Tunis (UVT), was created by decree n°112 /02 of January 28, 2002.

As its web site indicates (UVT, 2009), it aims to modernize and concretize a higher education project of open and distance formation accessible to all Tunisians and adaptable to the needs of the Tunisian economy, through effectively using digital multimedia technologies, leading eventually to the creation of a strong knowledge economy. UVT's intervention in the field of e-learning, training, and certification is wide ranging, and can be summarized as follows, with reference to its web site:

- Though it is essentially an educational institution, UVT offers courses to public and private sector employees who do not necessarily get a diploma upon completion of their training programs. This is a measure of concretizing the principle of lifelong learning.
- UVT offers 10% fully online diploma-granting trainings at the bachelor and master levels in the areas of radiology, applied prospective, computer science, accounting, business, among others.
- With reference to the LMD system, UVT serves as the driving force for designing, preparing, and delivering courses in subjects required of all university students, namely, ICT, English, and human rights.
- Currently, UVT spearheads the training effort for over 2 870 tutors as well as trainers in the use of ICTs, of digital pedagogy and scenarization and of online educational platforms.
- UVT provides free, easy and controlled access to more than 182 on-line teaching spaces with the Moodle platform emerging as favorite learning management system.
- Some 160 instructors use UVT-supported Moodle to deliver online courses for about 6,800 regular students.
- UVT provides more than 320 online courses free for all Tunisian higher education students. (UVT, 2009)

As a leader in e-learning, UVT guides and assists all other higher education institutions, provides training for their instructors and technicians, and delivers part of the equipment necessary for meeting

the e-learning needs of these institutions, including in particular 14 videoconferencing centers, one filming and editing studio, and 14 laboratories for digital production (UVT, 2009)

INFORMATION AND COMMUNICATION TECHNOLOGY-ICT

Over and beyond the work conducted by UVT in the areas of training, provision of technology and delivery of online courses, similar work is conducted by the Ministry of Higher Education Scientific Research and Technology (MHESRT) to consolidate international cooperation in the area of ICT. One of the most influential programs is the one implemented between Tunisia and the University of Athens in Georgia, called the UGA-Tunisia Partnership.

Started in 2002, his partnership has had as one of its goals to help Tunisian Universities deliver 20 % of the totality of their courses online by 2010 (UGA-Tunisia Educational Partnership, 2009).

Overall, the program has helped train both in Tunisia and in Athens, Georgia, more than 130 Tunisian postgraduate and secondary students, faculty and administrators, all of whom serve as disseminators, initiators and advocates of distance learning at the local and national levels.

More importantly, the Partnership between Tunisia and UGA has been instrumental in fostering a network of committed professionals who created a pioneering association in the area of e-learning called Association pour la Promotion de l'Enseignement Virtuel, Association for the Promotion of Online Learning (APREV). APREV organizes bi-annual seminars so attendees can showcase best practice, share their work and continue to upgrade their skills in an area where skills need constant upgrading.Like all countries interested in furthering the cause of e-learning, Tunisia has been keen to put in place the infrastructure necessary for implementing its goals. Three manifestations of such interest will be quickly reviewed here:

- The Association pour la Solidarité Numérique, Association for Digital Solidarity. This is a presidential association whose goal is to bring internet access to students and inhabitants of rural and outlying areas where there is yet no electricity or internet service. The effort consists in 10 roaming laboratories with 30 computer stations each that implements a schedule of visits to ensure that the digital gap is

narrowed between those who have internet access at home and those whose means do not permit them to partake in the internet age (NBMI, 2009). In a BBC report (Smith, 2009) brings to the testimony of a fourteen-year old beneficiary of this service: "I am teaching my mother and my grandmother so they can learn something new".

- The World Summit on the Information Society 2005. Being one of the high-profile events, this much publicized event took place in Tunis between 16 and 18 November 2005 and marked Tunisia's adherence to the principles outlined in the Geneva Summit of 2003, which stress the value of digital solidarity and the transfer of information and communications technologies: "We recognize the scale of the problem in bridging the digital divide, which will require adequate and sustainable investments in ICT infrastructure and services, and capacity building, and transfer of technology over many years to come" (WSIS, 2005).

- The Tunisian Internet Agency (ATI). As its web site indicates, ATI was created in March 1996 and operates as an internet tsar and service provider in Tunisia. It plays the role of the national operator for internet services offering access practically to all the public and private institutions including higher education institutions, research centers, secondary and primary education institutions through its proxy vendors. ATI provides the following figures in Tables 1 and 2 below as an indication of internet penetration in the Tunisian society (ATI, 2009):

Table 1.
Internet Penetration in Tunisia

Number of subscriptions	305.960
Number of email accounts	405.995
Number of users	2.960.000
Number of domain names	11.893
Number of web sites	8.563
Number of broad-band internet connections	262.986

Source: ATI (2009)

Table 2.
Internet Penetration in Educational Institutions and Research Laboratories

Universities	100%
Research laboratories	100%
Secondary schools	100%
Primary schools	70%

Source: ATI, 2009

E-LEARNING AND ICT INTEGRATION

Though not on a par with the average rates in the most developed countries, the figures in Tables 1 and 2 are considered by *the Global Information Technology Report 2008-2009* high enough to rank Tunisia on top of African and Magrebine countries and 38th globally among 134 countries in the category of the use of ICT as a catalyst for economic growth (World Bank, 2009 b).

Against this background, the two researchers are going to explore two case studies with which they are most familiar, on account of personal involvement. The first is the Connect Communicate and Collaborate (CCC) online course undertaken by the first author. This is an interactive, fully online English course offered by UVT for a diversified target public of students and employees to improve their skills in English communication. The second case represents a series of experiments with e-learning conducted by the second author at the level of the Faculté des Lettres et des Sciences Humaines de Sfax (FLSHS), Tunisia for the benefit of senior 4th year students as well as MA level students. In both cases, the authors consider themselves to be involved in action research, conducting themselves as researchers, instructors, trainers and learners.

RESEARCH AND EVALUATION

The CCC Experience
The first case study, CCC, used essentially the interview method of data collection to examine the e-learning systems used at the selected institutions and a questionnaire-based survey to gather responses from students on their perceptions of the effectiveness of instructional design elements, their e-

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learning behavior and the different obstacles facing them while learning virtually. The CCC course used two virtual spaces: Moodle for asynchronous learning and Skype for the synchronous, real-time communication. The project was run by three higher education instructors, and the first author was one of them.

On Moodle platform, CCC students were required to interact with course content, download/upload files, get informed about the planning of the assignments and chat sessions, access some resources and use the discussion forum. Via Skype, students were supposed to conduct 2-hour weekly chat sessions of English practice. Skype, though not commonly known as an educational teaching tool but rather as free social software popular among teens, friends, and even small and mid-sized businesses, was used in this course for lack of more professional real-time VOIP software. The use of Skype was more of an obligation because of the complexity of the Dimdim software which was originally planned for the course. Students and instructors both found Dimdim training session frustrating on account of the difficulty involved in operating it from the very first connection attempts.

Consequently, the choice of Skype came as a technical rescue from a total collapse of the training. Gradually, students and the instructors began to realize that Skype was not without its pedagogical merits.

Thus, the instructor could start a videoconference joining all the members of the group at a time. The instructor could also sometimes have a private chat with a student in particular to avoid intimidating him/her in front of classmates.

Moreover, the instructor could send and share word files, PowerPoint presentations, images and even short videos. Most importantly, Skype proved to fit the overall orientation of the communicative nature of the course. In Skype chat sessions, students found a unique opportunity to practice their English speaking and listening skills.

It was important to monitor and analyze the CCC e-learning experience, and to this end, the first author conducted a survey on how the experiment was run. The survey, which gained approval from the institution at which it was run, namely UVT, was developed to gather basic information on the needs and competency levels of the students who participated in the CCC course, their expectations, and the challenges facing them.

The entire research group consisted of 41 participants of varied academic backgrounds. Some of them were undergraduate students; others were graduates looking for a job or post-graduates doing research. The rest were employees in different professions (teachers, officers, doctors, engineers, businessmen, etc.). Although the survey response rate was not high, about 50%, the results are insightful as they can shape the overall perceptions of the students' population. The major hardships students complained about are essentially the technical nature of the course. Some of these problems arise from lack of training on the part of both the learner and instructor and also from low quality Internet connection, hardware malfunctions and some problems inherent to the software itself:

- Almost half of the respondents do not consider themselves *ICT-savvy* students and attribute this attitude to their inability to solve any technical problem they encounter on their own, when in fact this course needs for them to comfortably using a computer and the internet.
- Students as well as course instructors had not received enough technical training in using Moodle and the different functionalities of Skype before the start of the course.
- The technician supposed to attend the course was not always at hand. For a course engaging students with little experience and instructors with insufficient training, the presence of the technician would have been extremely useful from the very beginning till the end to solve any technical problems that arose while the chat sessions were going on. The "non-technical" role of the technician, often overlooked, appeared to be very important as he/she could indirectly influence the learning environment by "orientating participants to the technology, reducing the anxiety of the participants and by advising the instructor on instructional techniques" (Olesinski et al, 1995, 3).
- For some students, slow internet connections and older computers made accessing online course materials and chat sessions frustrating.

There were, however, other problems beyond the responsibility of the instructor, the technician and students. Some of these were technical glitches inherent in the Skype software itself. Knowing that there are nearly 200 million registered Skype users all over the world, the number of people using the software at any one time may be incredibly high, which could overcharge

the Skype server. This would make downloading or uploading files--mainly if they are audio/video files-- much too slow and a video conference call joining over 5 students practically hard. One of the respondents was aware of this and surprisingly opted for Dimdim again: "I suggest that you fix the Dimdim as it is a great solution for online training".

Misuse of technology is another problem. Such misuse is not the only barrier to effective e-learning nor is the efficient use of technology the only prerequisite for it. Wells and Wells (2007) hold that, "Technology may not be the appropriate or only solution to an educational problem". Clark even claims that technologies are merely vehicles that deliver instruction, but do not, in and of themselves, influence student achievements.; students gain significant learning benefits when learning from audio-visual or computer media, as opposed to conventional instruction, yet the reason for these benefits is not the medium of instruction, but the instructional strategies built into the learning materials (as cited in Ally, 2008).

Palloff and Pratt (2000, p.4) go further by affirming that "technology does not teach students; effective teachers do. Accordingly, the instructors must be trained "not only to use technology, but also to shift the way in which they organize and deliver material" (Palloff & Pratt, 2000, p.3). Greenberg (1998) strongly believes that the best distance education practices depend on creative, well-informed instructors.

Another major problem in the course was students missing the chat sessions and F2F sessions. 20 % of the students dropped the course altogether at an early stage. They had difficulty dealing with the lack of structure and discipline in a self-paced online program. Students have to be highly motivated and responsible enough to work on their own. Learners with low motivation rarely complete modules. As a matter of fact, only twenty students out of 41 sat for the final exam. This could be also attributed to the fact that "adults sometimes only register for a course in order to obtain knowledge, not credit, and may therefore drop the course once they obtain the knowledge they desire" (Rovai, 2002).

FLSHS Experience With Online Learning
The second author has conducted a number of successive experiments with online learning starting from 2004 to date. Involved in these experiments were 4th year English department students and MA students in theoretical and applied linguistics, as well as MA students from all college majors. This

report refers to three online learning platforms the author has used, reflecting his gradual understanding of and practice with early types of internet classroom assistants, learning course management systems, and web 2.0 tools. These platforms are respectively: www.nicenet.org, www.moodle.org, and wiki spaces provided by www.wetpaint.com

Table 3.
Use of Virtual Learning Environments at FLSHS, 2004-2009

Year	Level	Course(s)	Number of stds	Platform(s)
2004	4th year English Department	Comparative Stylistics	8/140	www.nicenet.org
2005	MA in Theoretical and Applied Linguistics	Sociolinguistics	18/42	www.nicenet.org
2005	MA in Theoretical and Applied Linguistics	Research Methods	6/42	www.nicenet.org
May 2006	MA in Theoretical and Applied Linguistics	Research Methods	27/42	www.nicenet.org
Oct 2007	4th year English Department	Sociolinguistics	57/140	www.uss.uvt.rnu.tn/FLSHS
Oct 2007	MA in Theoretical and Applied Linguistics	Research Methodology	13/40	www.uss.uvt.rnu.tn/FLSHS
Oct 2007	MA in Theoretical and Applied Linguistics	Sociolinguistics	26/40	www.uss.uvt.rnu.tn/FLSHS
Oct 2008	4th years, MA in Theoretical and Applied Linguistics, Aggregation students	Sociolinguistics	61/200	sfax.sociolinguistics.wetpaint.com

2008	MA in Theoretical and Applied Linguistics	Research Meth0dology	19/32	Flshsfaxremal.wetpaint.com
2009	MA in Theoretical and Applied Linguistics	Research Methodology	41/45	Flshsfaxremal.wetpaint.com
May 2008	All FLSHS MA students	Teaching pedagogy	82/87	Flshsfaxpedagogie.wetpaint.com
May 2009	All FLSHS MA students	Teaching Pedagogy	69/75	Flshsfaxpedagogie.wetpaint.com

Note. Stds=online students out of the total number of the registered students per level.

Table 3. summarizes the different phases of e-learning initiatives at the level of FLSHS, starting from 2004, date at which the author joined the College into today. All three platforms are free, open source, electronic communication tools, providing different functionalities with different requirements. Beginning with Nicenet.org, the level of technological savvy required from both the instructor, who is often the administrator, and the students is very low and thus not challenging, even to the novice user.

Nicenet is ad-free, easy to access, intuitive, and user-friendly. It does not require downloading a client, can work easily on a 56 K modem, and is not heavy on the system; in a word, it was a sort of poor man's Blackboard. Students were often excited about the ability to see course documents available from any internet-equipped computer. Nicenet.org permits the uploading of documents, an asynchronous discussion forum, link sharing, internal email system, and event announcements.

The main shortcomings of Nicenet are the following:

- Posting is limited to html documents, and excludes all MS Office suite applications.
- Nicenet has no ability to host audio or video or graphic content.
- Nicenet has limited capacity to create a dynamic, interactive learning environment except through the asynchronous discussion forum.

- Nicenet does have a test management program, where students could complete a test from within the system and later see, privately, their grades or comments on their work.
- Lack of a chat feature for communication or collaboration from within the platform is not an insignificant weakness.

Following intensive training the second author had received as part of partnership between UVT and The University of Georgia in Athens and collaboration between the MHESRT on the one hand and the Korean International Cooperation Agency (KOICA), the author engaged the use of Moodle LMS with the same groups of students as he had with Nicenet.

Moodle offered a comprehensive course management system, with announcements, quiz management, inbuilt email and instant messaging, blogs, real time chat forums, polls, the complete suite of MS office applications, audio and video uploading and downloading, scorm conformant learning objects, links, interactive exercises, individual student activity reports, etc.

Along with these merits, the use of Moodle was also cause for concern, through no fault of Moodle's. In order to operate, the computer connection needed high bandwidth; in 2007, bandwidth at FLSHS was no more than 256 K; the one computer lab that was allocated by UVT for the purposes of e-learning did not have more than 20 computers stations, and only a maximum of 5 could actually access the Moodle server or download a PDF, or play video at the same time.

By 2007, the pitch of the talk about the merits web 2.0 tools was getting louder and louder. The decision was taken to experiment with wikis and blogs, particularly with wetpaint.com
Like Nicenet, wiki spaces have no client to download; design was extremely simple, and access was easy at all times.

The course instructor hosted all his courses on Wetpaint, and, where appropriate, students were given wiki spaces to write their own thoughts and complete their assignments.

As the figures in Tables 2 and 3 show, this was the time at which students easily and quickly joined the wiki in much larger numbers than had joined Moodle-hosted course, and that in it, was a clear measure of success.

Evaluation of Experience

In 2004**,** as the online learning experiment was being piloted at the level of the College, students had little, if any familiarity with online learning. Introducing e-learning for the first time was both an opportunity and a challenge.

It was an opportunity because it meant that the author had to upgrade his courses and materials and to keep abreast of technological developments.

In addition, students could also claim having attended an online course on their CV, which will be one of the highlights of their profile. On the other hand, the challenges were many:

- The first major impediment was low bandwidth. It was not until 2008 that FLSH acquired a total of 4 internet-rich computer labs, with bandwidth of 6 gigabytes, which made access a lot easier.
- Only a handful of students had access to the platforms at home, outside college; ADSL/regular subscription was still something of a novelty for most students in 2004. Many of them could not easily afford to spend extended periods of time at internet cafes.
- Student knowledge of ITC was extremely limited, and most of them did not even have email addresses. Though the situation has changed rapidly since 2004, characterizing it as one of ICT illiteracy was not incorrect.
- There was the beginning of a charge of elitism addressed at the initiator of online learning as some contended that this style of teaching was elitist since it did not recognize that most students still had no easy and free access at college or at home, apart from the few labs that are only open for select scheduled classes and never for independent study.

 ISSUES

Given the overall context, any serious experimenters with e-learning will have to tackle a number of serious issues. Those could be described under the following headings:

Teacher-Re-Training

The whole teaching philosophy on which teachers operated in their teaching styles was based on transmission. Difficult though it may be, this challenge has to be recognized, questioned, and confronted. There is a new distribution of roles in novel environments: the instructor has to re-conceptualize his/her role from content feeder to content manager; from being the center of class to a person who can lead for a while, then begin to vanish, from a class master to an activity orchestrator, from an authoritative figure to a facilitator, from a sole judge to a seasoned and participatory manager.

Student Mentality

Just as the teacher needed to rethink their role, students were trained and reared into the being an empty receptacle destined to be filled. Learning to become an active member of a community of learners is not self-evident in a learning ethos where only the teacher has knowledge. So, from teacher-dependent persons, students have to relearn to be researchers and producers in the making; from obedient note takers, they had to transform into knowledge creators and communicators, and from a peripheral element in the learning process to pivotal driving force.

Equipment and Infrastructure

A determining element in the whole process of evaluation will remains superfluous without:

- The provision of adequate and sufficient hardware and software and open access to
- computer laboratories
- Intensive teacher reeducation programs
- A shift toward implementing ICT-sensitive assessment
- Opening ICT-enriched instruction as an area of research in its own right to rethink the theories of learning in light of emerging and fast-changing channels of communication.

With the number of students standing at 444.000 university students in 2009, and estimated to reach a peak of 492.000 (MHESRT, 2005), higher education institutions will find themselves confronted with the problem of legally securing a place for every Tunisian secondary school graduate at the university. Being able to deliver on this legal right will have to depend on the ability of the university system to make full provisions for online

learning in order to be able to service this increasing population with different training skills than traditional teachers have been accustomed to.

CONCLUSION

This paper has concerned itself with the description of e-learning provisions and initiatives in Tunisia. Overall, it is fair to say that the material foundations for disseminating and consolidating e-learning are in place: ATI has been in place since 1996. It has played a major role in bringing internet into many commercial, educational, and administrative institutions and into many private homes. Institutions like UVT and edunet.tn have been instrumental in affecting the lives of many educational primary, secondary and tertiary institutions. Non-profit organizations, such as APREV have served as major tractors and proponents of e-learning at individual and professional levels. On the other hand, the constantly rising number of students, together with the constitutional right every secondary school graduate has to go to university put stringent demands on the educational system to capitalize more and more on the promises of e-learning.

To do so, we suggest the following course of action:

- All parties concerned should engage a program of research designed to study, analyze, and disseminate available research on e-learning with the following goals:
  - Exploring differences between regular face-to-face instruction and web-based instruction;
  - describing and solving the nature of resistance to e-learning among learners and instructors and taking appropriate training measures to weaken that resistance,
  - exploring and describing in the Tunisian e-learning context, the nature of student-student interaction and teacher-student interaction; (iv) formulating an e-learning-sensitive definition of learning based on analysis of total e-learning experience;
  - defining a set of distance education best practices, and
  - conducting virtual student profile studies in the Tunisian context.
- Naturally, the dilemma of generalizing computer use and providing very affordable internet prices to reach the poorer and rural areas of the country must be given added urgency if we want to steer clear of putting the proverbial horse before the cart.

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CHAPTER-39

eLEARNING IN TURKEY
Past, Present and Future

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ABSTRACT

E-Learning offers many opportunities for individuals and institutions all over the world. Individuals can access to education they need almost anytime and anywhere they are ready to. Institutions are able to provide more cost-effective training to their employees. Not only globally but also in every country e-learning market is growing fast. The Turkish e-learning market is especially showing a significant growth in higher education and corporate settings.

This chapter intends to draw a big picture about the Turkish e-learning market. It mainly focuses on past and present status of e-learning implementations and examines how the institutions have been going through a transition to be able to reach 'e-learners'. Having an insight about the status of e-learning market in Turkey can be very beneficial for the entrepreneurial accessions to this market and also for the future collaboration opportunities.

INTRODUCTION

E-Learning is an innovation usually preferred in educational institutions to be able to reach more students. The term e-learning is one of those that are difficult to define due to fact that it has been used by many for various instructional activities. We do not intent to come up another definition but in order to ensure readers about our field of reference we would like to mention that we prefer to use this term for learning activities completed at a computer, usually connected to a network, giving individuals the opportunity to learn almost anytime, anywhere. That is why we believe that online

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learning, distance education, open learning, open education, web-based learning and some other terms are other terms frequently interchanged with e-learning.

We also would like to start with an introduction of Turkey. We think that having an idea about the context might help readers understand why some e-learning initiatives are successful while others are not. Thus we provided some descriptive information about Turkey in general and the education system. Later we focused on distance education initiatives in the country as a background for the development of e-learning in Turkey. Furthermore we introduced some statistical and other information about e-learning in educational and corporate settings in Turkey. Finally we listed several issues and trends that we think important to mention for the development of e-learning in Turkey.

TURKEY: THE COUNTRY PROFILE

Turkey is a developing country located between Europe, Middle East and Asia. Turkey stands at the northeast end of the Mediterranean Sea in Southeast Europe and Southwest Asia. To the north is the Black Sea and to the west is the Aegean Sea. Its neighbors are Greece and Bulgaria to the west, Russia, Ukraine, and Romania to the north and northwest (through the Black Sea), Georgia, Armenia, Azerbaijan, and Iran to the east, and Syria and Iraq to the south while in between Christian and Moslem countries. The Dardanelles, the Sea of Marmara, and the Bosporus divide the country geographically. Turkey's highly strategic geopolitical position gives the country the role of a mediating bridge of culture and facilitator of regional trade and politics.

The modern country of Turkey was founded in 1923 from the Anatolian remnants of the defeated Ottoman Empire by its national hero Mustafa Kemal Atatürk. Turkey adopted wide-ranging social, legal, and political reforms under Atatürk's leadership and become a "secular moslem" and democratic country. Turkey has also a great historical background and diverse population from very ancient times.

According to Turkish Statistical Institute, Turkey has a population of 64.241.226 where 6-29 ages are 13.340.413 (20%) 30-55 ages are 18.505.941 (28%) by 2008 (TUIK, 2008). Besides 17.8% of the total population of Turkey resides in Istanbul totally 12,573,836 people reside in

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Figure 1.
A map of Turkey

Istanbul. Respectively 6.3% of the total population resides in Ankara, 5.3% in Izmir, 3.5% in Bursa and 2.8% in Adana. Half of the population of Turkey is younger than 28.3 years old.

Table 1.
Population increase expectation of Turkey

Years	Rough Birth Rate 0%	Rough Death Rate 0%	Population Increase 0%	Total Population (thousands)
2000	22,2	7,1	16,6	67.804
2005	20,1	7,0	14,6	72.843
2010	18,0	7,1	12,3	77.750
2015	17,2	7,4	11,0	82.315
2020	15,8	7,5	9,2	86.478

Source: Can Fuat Gürlesel (2004) Türkiyenin Kapısındaki Fırsat, Eğitim Reformu Girişimi (Opportunity on the Gate of Turkey, Education Reform Initiative), Istanbul, October 2004, p.74

Table 2.
Development of the population of Turkey as per age groups

Years	Population of Turkey	Ages 0-14 (%)	Ages 15-64 (%)	Ages 65+ (%)
1950	20.947	38,3	58,4	3,3
1960	27.755	41,2	55,2	3,6
1970	35.605	41,8	53,8	4,4
1980	44.737	40,0	55,9	4,1
1990	56.473	35,0	60,7	4,3
2000	67.804	29,8	64,5	5,7
2005	72.843	28,3	65,8	5,9
2010	77.750	26,9	66,9	6,2
2015	82.315	25,3	67,9	6,8
2020	86.478	23,6	68,7	7,7
2025	90.225	22,7	68,5	8,8

Source: Nüfus Sayımları ve VIII Beş Yıllık Kalkınma Planı, Nüfus, Demografi Yapısı, Göç Özel İhtisas Komisyonu, Veri Kaynakları, Analizi ve Nüfus Projeksiyonları Alt Komisyonu Raporu, (Population Census and VIII Five-Year Development Plan, Population, Demographic Structure, Migration Special Commission, Data Sources, Analysis and Population Projections Sub-Commission Report) DPT:2556 ÖİK:572 Ankara, DPT, 2000.

A demographical transition process, similar to that of other communities shifting from a pre-industrialism urban society to an industrialized urban society is being experienced in Turkey. In this transition process, the birth rates roughly remained unchanged in earlier years, while the rough death rates rapidly decreased with an improvement in health conditions, resulting in soaring population increases. After a while, rough birth rates also begin to decrease while the decline of rough death rates paces down, causing to the slowdown of population increase.

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Then, the decline of rough death rates stops, and the population increase also continues to slow down accordingly. Finally, rough birth rates and rough death rates approach each other and consequently the population increase rate reaches zero, and the population remains constant at a certain level (See Table.1). Also the conducted projections indicate that the rapid population increase by 2005 will slow down in and after 2010, and the ratio of old population will increase (see Table 2).

EDUCATION SYSTEM

Total Adult literacy rate is 88,1 by 2006 in Turkey (DIE, 200?). The ratio of total primary school enrolment, regardless of age, to the population of the age group that officially corresponds to the primary school level of education is 96,34 as to 2006 (http://nkg.die.gov.tr/en/goster.asp?aile=3). The Ministry of National Education (MEB, 2006) gives the current participation rates as 95.6%(primary), 85.2% (secondary) and 30.5% (tertiary).

Table 3.
School Age Population of Turkey, 2000-2025 (millions)

Years	Preschool Ages 3-5	Primary School Ages 6-14	Secondary School Ages 15-18	University/College Ages 19-22
2000	4113	12.208	5742	5648
2005	3865	12015	5425	5540
2010	3902	11748	5314	5328
2015	3777	11543	5171	5257
2020	3805	11294	5124	5064
2025	3655	11268	4956	5077

Source: Quoted from Can Fuat Gürlesel (2004) Türkiyenin Kapısındaki Fırsat, Eğitim Reformu Girişimi (Opportunity at the Gate of Turkey, Education Reform Initiative) in Türkiye'nin Yükseköğretim Stratejisi (Higher Education Strategy of Turkey) (2007), Istanbul, October 2004, p.78 with certain alterations.

For many years, preschool education was perceived in Turkey as "child care" and the 'playschools' to which working mothers leave their children (Çağlar, 1999). However, the scientific findings indicate that most personal traits of a child develop before the primary school age. In Turkey, preschool education arbitrarily covers the children in ages 3-5 before the obligatory primary school age. The schooling ratio of preschool education in Turkey for 2005 is stated as 17% (Gedikoğlu, 2005).

Eight-Years Obligatory and Continuous Primary Education program was started in Turkey in 1997. The net schooling ratio of primary education in Turkey was 91.95% in 2003 (T.R. Prime Ministry State Statistics Institute, 2002-2004, Population and Development Indicators). In addition to the rapid population increase in Turkey, due to various reasons including mainly immigration from rural sections to metropolises both binary education has been started and very crowded classrooms with up to 50-60 students have occurred.

According to a research in 2004, the issue that is considered as most problematic at preschool, primary school, high school and equivalent schools is the quality and lack of educational instruments (Living Satisfaction Research 2004, p. 44). Although education is strategically important, it has failed to receive the deserved share from the government's budget most of the time, and continued to struggle under lack of sufficient means.

According to the data of the Board of Education and Discipline, when the figures of the European Union and Turkey -as a country which has adopted accession to the EU as a government policy- are compared, it is noted that the schooling rates in the EU countries at primary school and secondary school level has reached 100 percent, while the ratio in Turkey was stated as 87.6 percent at primary schools and 59.4% at secondary schools for the education year 1999-2000.

The schooling ratio at higher education level is 43% in average at the European countries while that in Turkey is 29%. In 1999, the ratio of total education expenditure to GNP is 5% in average in the European countries, 6 percent in average in OECD countries and 3.9% in Turkey. Under these circumstances, the quality of our education, its international validity and acceptability is questionable (http://ttkb.meb.gov.tr/programlar/prog_giris/prg_giris.pdf).

Again, as another leading element noted in the program of the board of education, it is mentioned that the purpose should not be complete dependence of education to classes and text books, memorizing the subjects in the books, telling or writing them when asked, and the necessity of using the books only as instruments while the students realize the activities was emphasized. The use of newspapers, journals, and extracurricular books and resources is important. Actually, such resources also shift towards computers and mobile devices with the advent of technology.

Figure 2.
Turkish Higher Education System's organizational schema
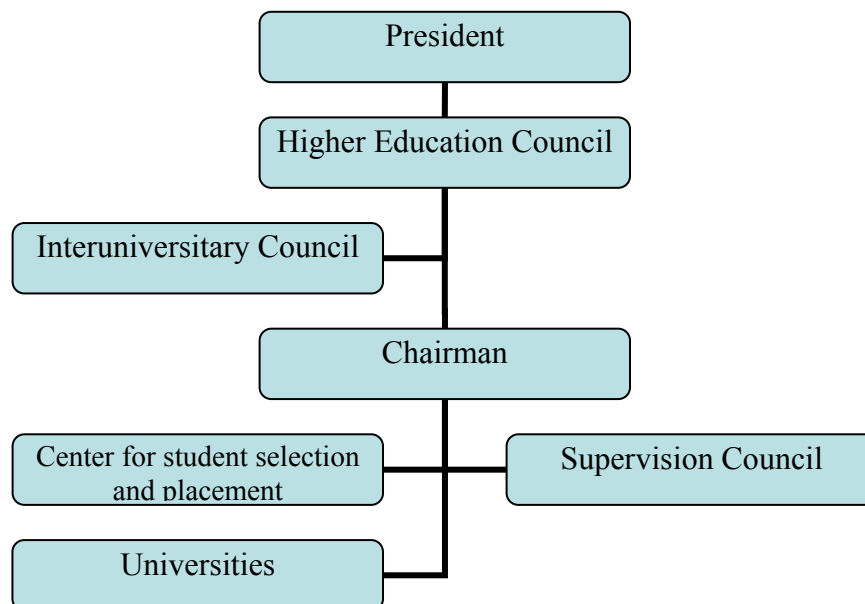
According to Gedikoglu (2005), a supra-parties education policy could not be created in Turkey. The system could not settle due to the policies changing from one government to another, and the continuity of education policies could not be ensured.

These practices also caused to a great loss of resources. Changing governments have muddled the system. This also depends on the efforts to continue a stable education policy.

Meanwhile, the higher education in Turkey relatively has a more autonomous structure than primary and secondary education in Turkey. Universities continue their efforts as depended to the board of Higher Education. Also the Student Selection and Placement Center, which organizes the tests for passage to the Higher Education, also serves as depended to the Board of Higher Education.

In Turkey, every year millions of student applications are received for higher education. For example, for school year 2009-2010, 1,349,782 candidates took the test (Cakmakcı, 2009). Considering the number of candidates that took the Student Selection Test (OSS), and the quotas of the universities, approximately 628 thousand of the candidates were entitled to register for associate degree or bachelor's degree of a public or foundation university program, while approximately 722 thousand candidates failed. The candidates, who obtain a certain score (higher than 145 limit points) and desire to study, may apply to an Open Education Faculty program.

Due to the high number of students in Turkey and in order to make a test which would not cause to a problem for such a high number of students, the way of making a central test based on multi-choice questions was chosen. Our country created a center that could be a model for many countries of the world in terms of selection test (Student Selection and Placement Center-OSYM), and a test system conducted by this center was developed. The present application form of the test was attained after passing through many stages.

According to Kızılsu (2005) the internet use has changed tremendously in Turkey since 1990 and nearly all Turkish universities have their own web sites and this gives them the incredible opportunity to catch up to more developed countries. The internet has given the researcher and the student direct, under-the-fingertips access to the total sum of knowledge in the world. It must not be forgotten that the potential of the www is 24-hour access to documents. Many web sites have been designed to provide educators with the necessary tools and information to explore the world of education. Turkish universities put some course materials (abstracts, literature, homework, etc.) on-line. They gather considerable technological and pedagogical experiences in providing distance education and from offering targeted supplementary educational courses.

DISTANCE EDUCATION IN TURKEY

To be able to get a better insight about the past and the current status of e-learning, it might be beneficial to have an idea about distance education tradition in Turkey. The roots of distance education can be traced back to early 1920s in Turkey. Correspondence study was considered one of the main solutions for ever-ending demand for formal higher education in Turkey. After several unsuccessful attempts, Anadolu University was established a solid distance education system in 1982 that has been helping governments meet quite a big portion the demand for higher education in Turkey. Anadolu University was established in 1981 from an older institution, the Academy of Eskisehir, Economics and Commercial Sciences (EAECS). In accordance with the Higher Education Act of 1981, it was also authorized to provide distance education in Turkey on a national scale. As a result in 1982 the former Faculty of Communication Sciences of the EAECS was transformed to become the Faculty of Open Education, or, as it is called commonly, the Open Education Faculty (OEF) (McIsaac, Murphy & Demiray, 1988).

Ministry of National Education (MEB) in Turkiye, has always given importance to technology use in education and distance education. Although MEB did not implement systematic remote education before 1992; they provided distance education material support for formal and non-formal education by preparing film, film strips, cards, radio and television programs; Even Training Materials branches were created at Provincial Directorates of National Education and organs to support their in-service training were developed.

Also in 1980's, TV School/TV Courses Projects which were again realized by the cooperation of the Ministry of National Education with TRT, produces and broadcast many course programs including foreign language teaching for high school students to back up their learning and prepare them for the university. Another purpose of these projects is to train teachers in terms of teaching methods and techniques (Adıyaman, 2002). Turkiye became the number one country of the world due to the programs prepared during the 5th Literacy Campaign which was started in 1981. With the book "İş ve Hayat İçerisinde YetişkinlerAlfabesi" (Alphabet of Grown Up in Business and Life), which was used in this campaign, the scripts of the TV serials (TV school) which were offered for literacy purposes for the first

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time, were written and the existing technology was massively used in this pretext (Oz, 2003).

In the 1982-1983 Academic Year, the OEF started to offer two undergraduate distance education degree programs in Business Administration and Economics with 29,478 students. By 2009-2010, the number of enrolled distance students at Anadolu University reached 1.4 million (98% of all distance students and approximately 41% of all students in Turkish higher education system). Today, the OEF, along with other two distance education faculties, is offering 15 different BA degree and 40 associate degree programs to students in Turkey, the Northern Cyprus Turkish Republic and some of the European countries such as Germany, Netherlands, UK and France. The programs vary from Business Administration to Pre-school Teacher Education. Recent figures show that majority of the distance learners of the University have jobs (78 percent). Among these students 30 percent live in villages and small towns, 62 percent are over 24 years old, and 45 percent are married. Moreover, 40 percent of them are female.

According to the Higher Education Council's (YOK) legislations, applicants should have at least 145 on the national entrance exam in order to register for a distance education program. However, anyone who holds an undergraduate degree or who is studying in an undergraduate program of any university is able to enroll for a distance education program from Anadolu University.

The distance programs of Anadolu University are primarily textbook-based self-study. In other words, students are expected to study their textbooks at their own pace, alone, and to take scheduled centralized exams administered at remote locations. The self-study is also supported with several services including broadcast television programs aired by a state channel throughout the country, video and radio programs distributed on cassettes, CDs or DVDs, remote evening classes, and e-learning tools. The rationale behind this sort of an instructional approach is common to all open and distance learning initiatives in emerging countries. These are based on (1) outreach to as many learners as possible in cost effective ways, and (2) providing alternatives for learners' limited access to the other technologies including computers, the Internet and even television broadcasts. However, use of e-learning tools and the number of online programs are increasing. Fully online the Information Management Associate Degree Program, e-MBA (a

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joint initiative with SUNY of USA and hybrid ESL Teacher Training programs are among those where e-learning is employed heavily. On the other hand each course in all the distance programs has an online support site, called as *e-learning portal* in which students can access multimedia learning materials, e-books (pdf version of textbooks), videos (broadcast TV programs), audio textbooks (in mp3 format), trial exams, asynchronous and synchronous pedagogical, technical, managerial and technical support tools. Almost all of these materials are also offered not only to the registered students but also to general public as free access learning materials under another portal, entitled as *Yunus Emre: New Generation Learning Portal*. Figures show that Anadolu University the e-learning portal is the most visited Web site in Turkey. Although Anadolu University is the dominant distance higher education provider, other higher education institutions have been showing a great interest in offering distance education especially since late 1990s as a result of advancement in computers and computer networks. Sakarya University, Ankara University, Ahmet Yesevi University, and some others are offering e-learning solutions to overcome huge demand for higher education for some years. These efforts will be detailed further sections of this chapter.

Finally, in terms of higher or even primary and secondary education, distance education seems as a convenience in many countries where there is enough number of seats for every individual who would like to get in a formal educational institution. However, for countries like Turkey distance education, or e-learning can be considered as a necessity to meet the education demand of large amounts. So, we would like to take this chance to express that e-learning in Turkey should be evaluated this nature is in mind.

TRANSITION TO INFORMATION SOCIETY AND THE IMPORTANCE OF E-LEARNING

Countries should be ready to use ICT for the transition to the information society. E-readiness is one of the important aspects of the E-learning. E-readiness is the ability to use Information and Communication Technologies (ICT) to develop one's economy and to foster one's welfare. According to E-readiness Rankings 2009 broadband and mobile connectivity levels continue to increase for almost all countries, notwithstanding the downturn.Some major findings from 2009's E-readiness analysis are stated below (Economist, 2009).

1. Emerging markets continue to rack up the biggest advances in connectivity, or the extent to which people are connected to communication networks.
2. Government ICT strategy in emerging markets is bearing fruit.
3. ICT development may benefit from the recession
4. Policy concerns exist on the near and longer horizons.

Turkey has ranked 43rd among 70 countries. E-readiness is a macro concept however it is an important indicator for e-learning readiness in respect to actualized e-learning infrastructure.

E-learning with mobile learning is the long term future of learning, not a niche part of educational developments. It will become part of a mainstream of what educators will do for teaching and learners will do for learning.

In Turkey, all classes in formal education are offered as face to face, and distance learning is almost inexistent in the practice. Face to face learning, despite many positive aspects, is among the main reasons of the limited capacity. This may be overcome through conducted certain classes in formal education through e-learning. Depending on the quality of programs and characteristics of the classes, if 10-30% of the program was made through e-learning, a noteworthy capacity increase may be obtained at the universities.

In the previous chapters of the Higher Education Strategy of Turkey, as the preference was made for distance learning and increasing the capacity of higher education, Turkey must take new steps to develop e-learning applications. Although an Informatics National Committee was established in Turkey in 1999 under the body of Board of Higher Education (YOK) and certain applications were attempted in the area of e-learning, a development as quick as expected could not be obtained. The required initiatives should be taken to revive this learning channel by evaluating this experience and by providing the necessary resources for making the payments that might encourage those who would prepare classes with this program. Special pedagogic approaches and design are required to obtain a successful result in open learning. E-learning is not a cheap substitute of formal programs. These programs should be designed as specifically based on pedagogical knowledge and have the required support systems.

E-LEARNING IN EDUCATIONAL SETTINGS

In terms of e-learning in educational settings Anadolu University's distance programs can still be considered as the largest e-learning system in Turkey because of the extensive use of online support materials for distance learners.

As it was mentioned earlier Anadolu University e-learning portal provides digitized version of their textbooks, streamed version of broadcast TV programs, audio books, and multimedia learning materials created in accordance with the textbook content, online trial exams with automated feedback system, asynchronous and synchronous facilitation services, and help desk for administrative and technical support to learners.

The University also offers almost all of these materials as free access learning materials to any who would like to learn. Furthermore Anadolu University has completely online programs. For instance, the Information Management Program is the first completely online associate degree program in Turkey. The program has around 1500 graduated and around 2000 current students. English language Teacher Training Programs is a one of a kind hybrid program in which students take completely online courses in their 3rd and 4th years after joining face-to-face evening courses during the first two years.

Additionally, award winner the Turkish Language Certificate program of the University is a completely online program intended to help those who would like to learn Turkish. This program offers multimedia learning materials as well as various communication and support services for those remote learners. The program currently offers three months long training in A1, A2, B1, and B2 language levels. The training in C1 and C2 levels are under construction and planned to be offered in 2010. This program is the unique program that offers online written and oral exams. Moreover, eMBA and online certificate programs on various topics are other e-learning solutions Anadolu University provides.

Sakarya University on the other hand is another important e-learning provider in Turkey. Along with its associate degree programs, Sakarya University just started to offer BS programs in engineering in 2008. The instructional strategy is quite different then Anadolu University. Sakarya University employed sort of a blended learning strategy, which means distance students in Sakarya University's programs should attend the face-to-face sessions.

Table 4.
Higher Education Institutions Offer E-Learning

Active E-learning Institutions in Turkey: Academic Level=associate level, bachelor, graduate degrees (2008-2009)
http://www.ue.gazi.edu.tr/Yüksek Lisans Programı (graduate program)Gazi University
http://e.cu.edu.tr/ Çukurova University
http://tuncamyo.trakya.edu.tr/ Trakya University Career College
http://www.mersin.edu.tr/uzaktanegitim.php?id=1144 Mersin University Career College
http://www.uemyo.gazi.edu.tr/ Gazi University Career College
http://ubimetis.bahcesehir.edu.tr Bahçeşehir University
http://www.ankuzem.ankara.edu.tr Ankara University
http://buzem.beykent.edu.tr Beykent University
http://ue.sdu.edu.tr Süleyman Demirel University
http://kleene.cs.bilgi.edu.tr/learn/ İstanbul Bilgi University
http://www2.yesevi.net/ Ahmet Yesevi University
http://www.uzem.sakarya.edu.tr/ Sakarya University
http://www.uzem.itu.edu.tr/ İstanbul Teknik University
http://farabi.selcuk.edu.tr/suzep/ Konya Selçuk University
http://cevrimici.aof.edu.tr/ Anadolu University
http://moodle.kou.edu.tr/ Kocaeli University
http://ue.istanbulaydin.edu.tr/web/ İstanbul Aydın University
http://muzem.maltepe.edu.tr/ Maltepe University
http://by.emu.edu.tr/ KKTC-Doğu Akdeniz University

A list of other Turkish universities can be found in Table 4. The majority of these universities offer two years long associate degree programs and master's degree programs. Same as Sakarya University many require their students come to face-to-face sessions.

Not only the universities but also some private firms are setting up successful e-learning programmes in Turkey. Because there need to be a huge training programmes for the companies and these types of programmes are inexpensive, fast and effective.

Additionally this also brings the flexibility of the personal development for the workers and customers.

E-LEARNING IN CORPORATE SETTINGS

E-Learning is not only increasingly diffusing in educational settings but also in corporate settings as well. According to the Global Industry Analysts the global market for e-learning will grow to reach $52.6 billion by 2010. GIA stated that in 2007 only in USA the e-learning market was $17 billion in 2007. According to the same firm overall usage of e-learning Worldwide will reach a compound annual growth rate of 25 percent to 30 percent through 2010. According to Aydin and Tasci (2005) there are several reasons behind this increase in e-learning implementations. One of the most significant reasons is related to the cost of training. The literature is filled with reports about how much money companies saved by implementing e-learning. Increasing employee retention, rapid development, deployment and updating of courses, providing more effective training, availability of courses anytime anywhere are some of the other motives for corporations to invest in e-learning.

Although there are quite impressive developments, e-learning in Turkey is still in its infancy stages (Aydin & Tasci, 2005). We could not reach a solid statistical data but it is expected that the e-learning market in Turkey will reach $40 million in 2010. Initial costs, infrastructure requirements, shortage of qualified vendors and uncertainty about the functionality as well as past unsuccessful experiences about use of technology for training are among the major barriers for diffusion of e-leaning in corporate settings in Turkey. Some of the e-learning vendors in Turkey are listed below:

- Avez (enocta)
- IES education —> sebit (sbs) + mobilsoft
- Kavrakoğlu
- Meteksan
- Bilge adam
- Koç systems
- Halıcı (halsoft)
- Pleksus Information Technologies
- Bilsoft (knowledge, education, technology)
- Febau
- Element Educational Technologies
- Infinity Technology
- 5M (fullearn)

These production's multimedia and software are generally for institutional and school age segments. Banking sector is one of the significant users of these e-learning programmes. Most of the banks such as Garanti Bank, Isbank, Fortis, Akbank, Finansbank, Şekerbank, Halkbank and Ziraat Bank are some serious users of these programmes for their staff and the education for their customers (enocta, 2009). On the other hand some of the leading banks such as TEB (Turkish Economy Bank) and Yapı Kredi Bank are planning to use e-learning platforms to train their employees and also their customers especially that of problem intensive subjects.

There will be some other examples of the retailing sector projects such as "akademig" (http://www.akademig.net/) from one of the large retailers Migros. According to Migros HR and IR Deputy General Manager Alkaya Leadership, Behavioral Development, Quality Management Systems, Corporate Culture, Customer Relations and Performance Management and Active Sales Management courses are given from an e-learning portal (http://kariyerim.milliyet.com.tr/detay.asp?id=534 retrieved 10/29/2009).

TRENDS & ISSUES

Experts such as Anderson (2002), Bean (2003), Chapnick (2000), Clark and Mayer (2003), Gold et al. (2001) warn managers/administrators to be careful in the process of adopting e-learning for their organizations. Although they focused on corporate setting, the past and unfortunately many current initiatives provide evidence that it is true in the higher education settings. These experts and many more point out that adapting e-learning without careful planning most likely ends with cost overruns, unappealing learning products, unsatisfied learners and failure.

They also state that like any other major innovation, e-learning strategies require considerable up-front analysis, development time, money, technological infrastructure and leadership support to be successful. Thus, managers/administrators should assess their readiness for e-learning before adopting this innovation.

The literature on organizational readiness for e-learning provides managers questions, guidelines, strategies, models and instruments for assessing the readiness of their companies for e-learning. Haney (2002), for example, suggests that managers should ask themselves 70 questions for assessing their organizational readiness. She classifies these questions into 7 categories:

- Human resources;
- learning management system;
- learners;
- content;
- information technology;
- finance; and
- vendor.

Haney's instrument is sort of a checklist that requires managers to choose levels of importance for each of the questions. A manager should decide whether the question is "not very", "moderate" or "very" important for her/his company. However, the questions under the last three categories, which are information technology, finance, and vendor, have already been checked as "very" important because Haney believes that these items should always be considered as very important in any e-learning assessment process. Likewise, Chapnick (2000) has developed an instrument for assessing organizational readiness for e-learning. She considers her instrument as an e-learning needs assessment model and she states that the model helps to answer three main questions;

- 'Can we do this?',
- 'If we can do this, how … are we going to do it?', and
- 'What are the outcomes and how do we measure them?'.

Chapnick claims that there are several factors that must be considered to assess readiness. She lists 66 factors in question format and groups them into 8 categories:

- Psychological;
- sociological;
- environmental;
- human resources;
- financial readiness;
- technological skill
- (aptitude);
- equipment;
- content readiness. In a different way than prior researcher,

Chapnick provides multiple choices for each question and expects managers to select only one response that represents the situation of their respective companies. Each response has a point value indicated in parenthesis at the end of each choice. The managers are expected to add up the points for each section after responding to all the questions in the section. In addition, the managers are asked to combine the points for each section to find out the cumulative score. According to Chapnick's model, the lower the grade the users get the more ready their companies are for e-learning. The model helps managers not only assess on what level their companies are ready for e-learning, but also reveals in what areas their companies need improvement and in which areas it is successful.

Table 5.
The factors and constructs identified to assess
e-learning readiness of companies

	Resources	**Skills**	**Attitudes**
Technology	Access to computers and Internet	Ability to use computers and Internet	Positive attitude toward use of technology
Innovation	Barriers	Ability to adopt innovations	Openness to innovations
People	• Educated employees • Experienced HR specialists • An e-learning champion • Vendors and external parties	Ability to learn via technology	
Self-Development	Budget	Ability to manage time	Belief in self-development

On the other hand Aydin and Tasci (2005) have suggested the following factors to be able to assess an organizations readiness for e-learning. Their

suggestions are based on Everett Rogers (2003) Diffision of Innovation theory.

Table 6.
The factors and constructs identified to assess
e-learning readiness of the educational institutions

	Resources	**Skills**	**Attitudes**
Technology	Access to computers and Internet	Ability to use computers and Internet	Positive attitude toward use of technology
Innovation	Budget Time	Ability to adopt innovations Ability to manage time	Openness to innovations

People	• Learners
	• Instructors
	• Staff
	   ○ Instructional Designers
	   ○ Content Experts
	   ○ Computer programmers
	   ○ Graphic artists
	   ○ Support personnel
	• Vendors or strategic partners
		Ability to learn via technology
		
		Ability to facilitate distance learning
		
		Ability to produce distance learning materials
		
		Ability to support learners and instructors
			Positive attitude toward self-directed learning
			
			Positive attitude toward open and distance learning
			
			Positive attitude toward team work

According to the authors every organization should have required resources, skills and attitudes to be able to implement e-learning. A similar approach with several changes can be used in educational settings. One of the important differences is that the educational institutions should focus on learners and instructors. For instance, in terms of technology, administrators of educational institutions should ask themselves whether learners they targeted have access to computers and Internet to be able to attend the online courses. Also they have to be sure that their instructors are able to access the technology to be able to implement and produce instructional materials.

In summary, an educational institution may assess its readiness for e-learning by analyzing the resources it possesses, and the skills and attitudes of its learners, instructors, staff, as well as administrators. In addition available vendors and/or strategic partners might be very beneficial for the success of an e-learning initiative. These resources, skills, and attitudes are related to technology, innovation, and people factors.

In the light of these factors and constructs to assess e-learning initiatives in Turkey we can easily identify several trends and issues. For instance, in terms of resources, a big majority of the educational institutions as well as corporations heavily rely on vendors' management, design and development capabilities. Although they wish to have their own resources, for example learning management systems (LMSs), due to shortage of qualified technical staff they are having difficulty to build new systems or adapt available ones. The shortage of staff and technology as well as knowhow force them work with limited number of vendors who usually prefers to sell one product to many and to keep close ties with the institutions to be able to make as much profit as they can. Therefore we see same course materials offered by different universities under different or same courses. Limited number of educational institutions and corporations are able to establish better relationship with the vendors.

Another issue is about the instructional strategies employed in e-learning courses. The majority of the learning environments are still designed to promote traditional one-way communication flow as a result of computer-based instruction tradition. And a big number of those who were able to shift their design do nothing but imitating face-two-face strategies into online environments. A good evidence of this trend can be observed in the activities done by using synchronous communication tools. In quite a number of

institutions these tools are being used to lecture or to conduct question and answer session. On the other hand, learning in networked era is not same as in industrial and information eras. It requires a different perspective to design learning environments. Authentic tasks, ongoing assessment, respect to preconceptions, differentiated learning are some of the components educators should consider designing e-learning environments that really work. The vendors' limited background in learning theories also does not help institutions and corporations offer effective learning experiences.

Additionally seeing e-learning as an opportunity to make (or cut) more money rather than a way to help learners learning is one of the major issues. This belief leads institutions and corporations kick off e-learning initiatives without starting a cultural change in institution, careful planning and budgeting, quality in the LMSs and ICT, adequate training, support and time-release for teaching staff, and experienced instructional design and ICT support personnel. As a conclusion, dissatisfaction and frustration usually appears among learners and society in general.

CONCLUSIONS

Education is a field of social responsibility from the point of the government and very important for the countries. The government should intend to improve citizens with these educational efforts. Besides the business approach to education is individual or institutional. This also enhances value creation policies with its educational system. E-learning brings a lot of educational opportunities to the people who are living in rural areas, workers who can not able to attend face-to-face courses, people who have some limitations and women who encourage improving themselves.

In the last 20 years, with the introduction of the existing information on electronic environment to the economy and the business world, and as a result of their direction in this way, individuals also perceived the importance of E-learning in a short time (Yamamoto, 2009).

Turkey is a country between three continents and several cultures. Some descriptive information about Turkey in general and the education system has provided and background of today's e-learning approaches of Turkey has also explained in this chapter. Since e-learning is still in infancy stage in Turkey, there are a lot of issues to be solved. Dependence to the vendors, shortage of qualified staff as well as instructors, exaggerated expectations,

unappealing and ineffective learning materials, preconceptions about learning at a distance, and lack of legislations are some of the significant issues that should be taken into account.

As we have mentioned, e-learning is one the fastest growing innovation in Turkey same as all around the world. Since early 2000 quite a number of Turkish companies and especially higher education institutions have been literally jumping into e-learning wagon without any frontend analyses. The results are not promising: only limited number of companies have reached or approached their expectations from their e-learning initiatives (mainly providing cost-effective training) and still Anadolu University, a long time distance education provider, is the dominant e-learning provider along with only couple of others such as Sakarya University and Ankara University. Not to mention primary and secondary education: there is almost no successful initiative about integration of e-learning into classrooms. On the other hand e-learning is increasingly diffusing in corporate settings as well in Turkey. The most significant reasons for e-learning are related to the cost cutting for the companies. However some banks and retail companies has started to give more importance to e-learning to educate their staff and customers.

On the other hand, social networking, mobile learning, Web 2.0, open courseware, communities of practice, informal and non-formal learning, standard-based learning, user-generated content, ongoing assessment are among the major trends in e-learning implementations all over the world. In Turkey, unfortunately we do not observe these trends. Instead extensive use of self-study materials and synchronous communication tools as well as large number of classes, degree or certificate programs on very specific fields, blending with face-to-face lectures can be seen as major trends.

Governments have a very crucial role for encourage these kinds of programmes. E-learning should be used primary, secondary, tertiary and higher education. There should be an e-learning readiness scale for the needs and future plans for e-learning. On the other hand there is also a social resistance for this new kind of systems. Since 1980's Anadolu University's Open Faculty's efforts are significant.

Also with the new technologies there is a great tendency towards Internet and mobile Internet which is also very important for eliminate the resistance for distance education.

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CHAPTER-40

eLEARNING IN UKRAINE

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ABSTRACT

E-learning in Ukraine is in the focus of both academic research and educational practice. It is considered as a vital element of educational innovations, an important component of modern education and a bridge to e-society. One can observe both grassroots activities of the teachers looking for technologies to increase students' motivation, learning efficiency and depth of understanding, and institutional efforts to support and upgrade teachers' competencies in information and learning technologies. At the same time, research area covers models and methods for learner's assessment, control and support, intelligent technologies for innovative interfaces, knowledge representation and processing, decision-making and problem-solving. This chapter describes socio-economic conditions, educational landscape and technological infrastructure that constitute an environment for e-learning development and deployment in Ukraine. It demonstrates some results, progress and prospects for e-learning, as well as research potential for collaborative projects and cross-cultural educational studies.

COUNTRY

Ukraine is a country of Central-East Europe, having borders with Poland, Slovakia and Hungary to the west, Belarus to the north, Russian Federation to the east and Romania and Moldova to the southwest (see fig.1). With the territory of 603 700 sq km it is rather large European country consisting of 24 regions and the Crimean Autonomous Republic. The population of

Ukraine is about 46 mil., approximately 2/3 of which lives in cities and towns, and the rest-in rural areas. (http://www.kmu.gov.ua/control/en/publish/article%3fart_id=235995 &cat_id=32672 retrieved on 12.12.2009). e density of population varies across the country with more concentration in the industrial south-eastern part.

Figure.1
A map of Ukraine

Source:
http://geography.about.com/library/cia/ncukraine.htm retrieved on 12.12.2009

Due to Ukraine's geographical position at the crossroad of merchants' paths between Europe and Asia, and North and South (from the Vikings to the Greeks), it was influenced by many cultures during its history.

The latest influence could be attributed to the Soviet period when Ukraine was one of the most developed republics with good industrial and agricultural potential. Its educational system inherited from that time has been significantly updated to bring it closer to the international framework.

Most of the population is Ukrainians, with some presence of other nationalities (http://www.mapsofworld.com/ukraine retrieved on 12.12.2009)

The official language is Ukrainian; Russian is the second widely used language, especially in south-east regions.

Official Internet sources present information in Ukrainian, however, a number of web-sites of commercial and government organizations present information in three languages -Ukrainian, Russian, and English- to better address the needs of their audience. eing one of the most industrially developed Soviet Republics, Ukraine preserved its potential in machinery, metallurgy, vehicles (buses, trucks, cars) and engines production, as well as in some other areas.

However, its economy, attributed to that of "a country in transition" for quite a while still needs serious updates in both technology and legislation to speed up the progress.

Priorities in further industrial development cover both traditional and innovative areas, thus requiring a broad spectrum of specialties to be included into the professional training and higher education.

Importance of quality education is recognized both by the state and by Ukrainian citizens, which is reflected in a significant government support of tuition-free positions and a steady level of applications to higher education institutions despite decreasing number of school graduates.

EDUCATION

According to the Law on Education [The Law, 1991, p. 2], the goal of education is the comprehensive development of the individuals, their talents and abilities, improvement on this basis intellectual, artistic, cultural potential of the people, and provision of the national economy with qualified specialists.

Education in Ukraine is considered as a basis for the intellectual, cultural, social, and economic development of the country.

Ukrainian government supports consistent development of the multi-stage educational system, its integration into the international framework. Educational system in Ukraine has a structure similar to those of East-European countries.

Figure 2. Education in Ukraine
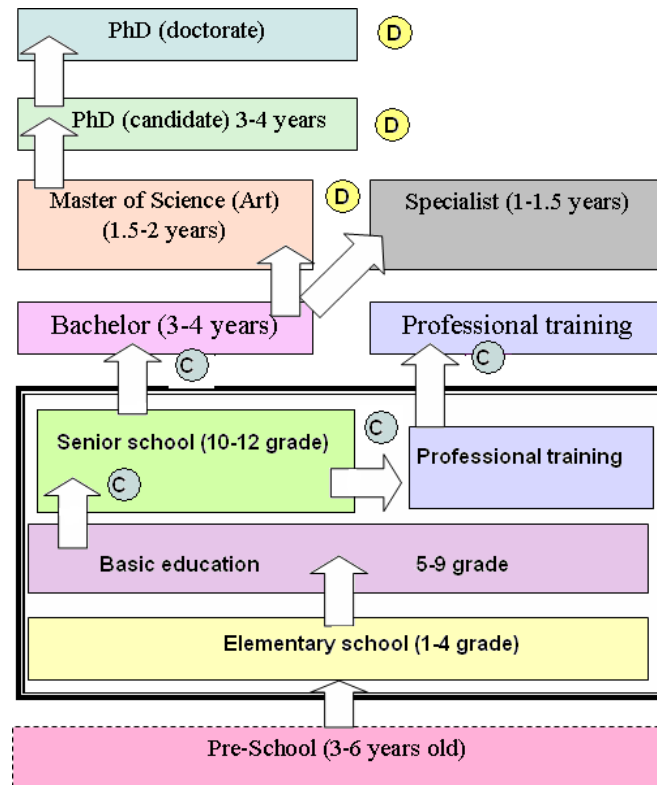
In particular, it includes pre-school, general school, out-of-school, professional, and higher education, PhD education at 2 levels, retraining and self-education. The diagram (figure 2) demonstrates a structure of the educational system and type of certificate obtained at each stage. According to the Law "On Education", citizens of Ukraine have a right to obtain education using different forms – full-time, part-time or extra-mural. Pre-school education is considered as an important step in bringing up children, developing their motivation to learn and abilities, supporting creativity and logical thinking, as well as preparatory stage for regular school. With two working parents in a family, most of families in Ukraine use state system of pre-school education. More than 85% of 5-years old attend public or private kinder-gardens or preparation groups in schools. School education covers elementary, secondary and junior high school and is available free of charge

throughout the country in Ukrainian and languages of minorities where appropriate. Informatics (and computers) is normally introduced as a discipline from the 5th grade, but special courses for elementary school and pre-school children exist. Besides general secondary schools (20 300 across Ukraine), there are other private and public educational bodies offering additional and extended courses beyond the mandatory school program, such as Gymnasiums (270), Lyceums (230) and Collegiums (25). Almost all schools (above 95%) have computer classes and 85% are connected to the Internet. However, number of children per computer is still high, and technical updates are often a subject of available sponsorship. Quality of school education is one of the priorities, and monitoring of school transformations demonstrated support of the proposed changes and satisfaction by the level of teaching by the families. About 1.5 mil children are engaged in out-of-school education to extend their knowledge and skills in sciences, sports, or arts, including programming and computers. (http://pedagog.profi.org.ua/, http://www.mon.gov.ua/ retrieved on 12.12.09)

"Higher education" refers to professional (vocational) and University education. Vocational education helps the students develop competence and professionalism in industrial and agricultural fields, construction and services foster their general and professional culture. Vocational institutions, both private and public, provide training in more than 500 professions. There is a tendency of decreasing a number of vocational students, which reflects demography trends and industrial transformation. There are more than 300 University-level educational bodies in Ukraine. Two third of them are managed through the Ministry of education and science and some other ministries (healthcare, military and security, etc). Government identifies a number of tuition-free places for all specialties in each of these Universities; additionally, self-paying students may be accepted. Private Universities accept self-payers only. The admittance is open for all on the competitive basis.

Currently entrance to the University is granted based on two components – the results of the unified national testing in basic disciplines (introduced by the Ministry) and results of the oral or written exams offered by a particular University. According to the national statistics, in 2008/2009 school year 2.36 mil student studied in Universities, with annual entrance/graduation of 400-500 thousand for the last 3 years. Since 2006/2007 assessment of the student knowledge level in all Universities is performed according to the recommendations of the European Credit Transfer System.

Following the Bologna process, Ukrainian Universities extend their links with European Universities, giving their best students an opportunity to spend a year studying abroad, supporting teacher exchange visits and offering common programs or courses developed in collaboration. To facilitate innovations and to make research (concentrated mostly in the institutions of the Academy of Sciences) more accessible to the students, a title of Research University is proposed. Research Universities are selected among largest Universities which already have well-developed learning and research infrastructure and are known for their research projects. They will receive extended rights in managing their curricula, certification of the students and researchers, as well as have preferences in obtaining grants as leading research and education centers.

DISTANCE EDUCATION

Distance learning as learning-by-correspondence (extra-mural education) is widely used since XX century. Almost all major Universities used to offer this form for specialties where extended practice is not required. Nowadays distance form is selected by those, who need a flexible schedule, as well as by a growing number of people who already has a diploma but need training and certificate relevant to their current occupation. Introduction of the Internet opened new opportunities for distance students and influenced a framework of the offered educational services.

The first steps in ICT-based distance learning were related to the participation of Ukraine in a number of international projects. The first web-based courses on Internet and instructional design developed within "Copernicus" framework in 1995-1999 in coordination with experts from the Netherlands and UK were made available in Russian and Ukrainian languages free of charge [Dovgiallo, 1997, p. 223]. During three months, about 300 participants from all regions of Ukraine participated in their piloting using email as communication means for assessment and feedback. This experiment demonstrated significant interest of Ukrainian users to ICT-based distance education despite limited bandwidth and high costs of the Internet connection. Legalization of the Internet-based distance learning started with the approval of the Concept for Development of Distance Learning in Ukraine in 2000, according to which distance education was recognized as one of the forms of education for all its stages and important means for life-long learning support in information society.

Decree of the Ministry of Education and Science issued in 2004 defined structure, functions, management aspects, as well as organizational specific and details of distance learning. Since then, many Ukrainian Universities developed their own normative documents regulating various aspects of distance education. The most active period for introduction of distance learning in Universities was in 2000 -2005. At that time, the first distance University programs started at the International University of finances and Interregional academy of human resources management in Kiev.

The National program for 2004-2006 through its grants supported development of infrastructure for distance learning, teachers training and course development. Since then, teachers training are offered on-line by the Ukrainian institute of distance technologies in education. According to the estimation, distance courses offered by Ukrainian Universities and commercial distance learning centers cover more than 200 disciplines, related to economics, management, engineering, technology etc. Significant number of them is based on the textbooks developed for traditional teaching, and supplied by tests, supportive materials and references to learning activities. There are practically no open web-based courses or demo-versions. Delivery of distance courses is arranged through learning management systems, with open source (mostly the Moodle) or self-developed LMS in majority of traditional Universities, and a choice among Learning Space, Prometeus or eLearning Server in Distance Learning Centers.In general, distance learning in Ukraine follows a traditional framework of teaching, i.e. mapping of typical types of learning events – a lecture, a seminar, a laboratory work, a test-into an ICT-supported form. Usually, Universities offer a blended learning format for a degree, but in case of individual courses, certification may be obtained completely online (Shunevich, (2000), p. 178).

INFORMATION AND COMMUNICATIONS TECHNOLOGY

The key document outlining main tasks and steps towards building information society in Ukraine is the National Informatization Program (first adopted in 1998), which is aimed at creating a framework and environment for information exchange based on information technologies together with ensuring information security of the state. The program's budget approved each year supports important tasks related to collecting national information resources, ICT support for research, education, medicine, culture etc., stepwise extension of e-government, growth of national IT-sector as well as

integration into global information space. According to the National committee for informatization, there are more than 10 mil Internet users in Ukraine (in 2009), which is three times more than in 2000. Internet World Stats (www.internetworldstats.com retrieved on 12.12.2009) shows 6.7 mil for Apr. 2008, which is still lower than the national data for the same period. Inclusion of informatics as a mandatory discipline in schools, and popularization of computer and Internet literacy led to significant growth of Internet users. Connectivity level, options, bandwidth and prices vary across the country with a strong tendency of making Internet available for everybody.

In large cities of Ukraine, people can select a provider and service according to their needs; currently it is easy and inexpensive (10 USD per month) to get access through cable TV providers or large telephone companies. Some households may have more than one computer or email address per person, and several connection options, at the same time in rural areas, connection is still unsatisfactory and computer at home is rather a luxury. Lack of public training and assistance restrain the growth of middle-age Internet users who need help for software installations, maintenance, and virus protection.

The situation is gradually changing as mobile phones become common communication means for all places and all ages. Providers report about 5 mil of mobile users in 2009, most of them using GPRS, and more than 0,8 mil-3G. Random selection of 1100 mobile Internet users demonstrated the following profile of a typical user: young fully-employed male person from a medium-size city: (90% male, 63% under 30, 62% employed full time, 66% live in administrative centers of different levels other than the capital). Ukrainian web (.UA) is represented by almost 0,5 mil domain names.o ensure its further integration to the European and world information space, Ukraine identified development of IT standards harmonized with respective International Standards as one of its priority areas. A large advance has been made in computer networking and telecommunications, electronic documents, information security, biometrics. Learning technology standards among others facilitate interoperability of the learning products and paved the way to exchange and reuse of the courses. Key learning technology standards are accepted, among them "Learning object metadata" and "Quality management, assurance and metrics" for e-learning (based on the international standards IEEE 1484.12.1-2002 [IEEE 1484.12.1-2002, 2002] and ISO/IEC 19796-2005 [ISO/IEC 19796-2005, 2005]). Comparing e-readiness of Ukraine (62nd position worldwide in 2009) with that of Denmark

(worldwide leader) or Estonia (most "e-ready" country among former Soviet states), one can notice most drastic lags in adoption of technologies; legal provisions and government policy and vision (see fig.3). Slowly the progress is made: the laws on electronic documents and electronic signatures were approved in 2003, in about 2 years the first center for issuing electronic keys is accredited. Since 2006 100 000 e-keys have been obtained by state and private organizations. Although some tax and financial reporting is accepted in electronic form, paper-based format is preferred by many administrative offices using emails or electronic forms as a back-up information only.

Figure 3.
E-readiness of Ukraine
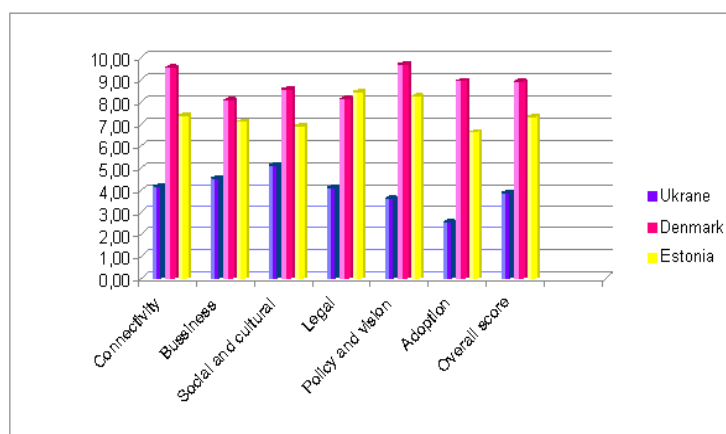
Public web resources offered by the official bodies, such as ministries, committees or organizations, varies from simple web-pages to dynamic portals offering recent information and extended search in the database (see legislative base of Ukraine). In general, e-government program, which is being implemented since 2001, is still focusing rather on "informing" than on "communicating" with the citizens. E-business and e-commerce are the ones most influenced by the lack of appropriate legislative base. Nowadays thousands of Internet shops in Ukraine offer information about products and services with several payment options, including cash upon delivery as the most widely used. A call-desk is often available to add credibility to the offered virtual service. E-business and e-commerce addresses mostly young customers operating naturally in a virtual world. The development of information society in Ukraine is being fostered by young professionals, who consider Internet as the most current and complete source of information, a

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powerful knowledge resource, and convenient communication medium. Their information needs, wishes and requests for innovative solutions inspired by the frontiers of science, abilities and readiness to master new technologies facilitate promotion and expansion of electronic services, and determine the future of ICT-supported reality.

E-LEARNING AND ICT INTEGRATION

Computer classes, labs and centers existed in the Universities well before the Internet era; however, an opportunity to connect to global information network, share knowledge and communicate across boarders was a strong motivating factor, facilitating acceptance of new technologies (Danilova, 2004, p. 922).

The first project of computer network for research institutes and universities was prepared by the National Academy of Sciences and Ministry of Education in 1996 and in 10 years of its operation (1998-2008) Ukrainian Research and Academic Network (URAN) becomes a structure uniting 100 organizations from 18 regions and about 0,5 mil users. Its main purpose is to provide Internet-based services for professional development, such as efficient information access, sharing, distribution, accumulation and processing. It supports a framework for distributed research data processing, distance education, virtual laboratories, electronic libraries, distance monitoring etc. Creation of this network was supported by the National informatization program as well as NATO research grants. Besides that, the National program included at its different stages infrastructure grants (computers for schools), support of Ukrainian information and learning resources on the net, accessibility and portals, as well as teachers' training in ICT. nce 2002 URAN is connected to the European research and education network GEANT, and since 2007 – to GEANT2 through Poland. This connection was an important step of Ukraine towards European information space, enabling the use of research and information resources, databases, supercomputer processing, distance learning and thus facilitating further development of research collaboration in climate change, physics of elementary particles, radio-astronomy etc.

Introduction of e-learning technologies was accompanied by creation of national information and learning resources, their collections and portals. Nowadays e-libraries are available for students and teachers through the portals of most of the large Universities.

The Vernadsky National Library of Ukraine offers on-line catalog of its resources which covers almost 0,5 mil titles, links to other e-libraries and collections, as well as provides access to the Internet resources and research publications through its Internet rooms. Among free Ukrainian resources widely used in education one can mention Vocabularies of Ukraine on-line or translation support to-from major European languages.

The level and depth of ICT integration into teaching and training depends on financial status of the organization and vision of its administration, but also on the readiness and willingness of the staff to implement new forms within a traditional framework [Gritsenko, 2006, p. 17]. Introduction of innovative methods require not only technical skills, deep pedagogical understanding of potential benefits and risks, but also justification and approval by the administrative bodies. In most schools, use of computers is limited to informatics, though lyceums and gymnasiums may offer interactive whiteboards, educational CD-ROMs, and specialized learning software, as well as Internet-based activities. University students widely use Internet sources from public domain as well as learning materials offered by their department in a variety of formats, including distance courses, assignments, and tests. Technical universities are the most advanced in using specialized software for learning and training, professional packages for statistics, design, specialized computations, financial analysis etc (Lvov, 2008, p. 157). Workplace e-learning is limited to large companies, mostly with foreign investments, as small and state enterprises rarely can afford regular expenditures on retraining. However, recently creation of distance courses is considered for customer training and support by some of the Ukrainian companies specialized in high-tech solutions.

CASE STUDIES

In average, everyday practice of e-learning in Ukraine does not bare a lot of national specifics. However, below is an outline of a spectrum of e-learning projects in Ukraine in various educational settings.The first one illustrates an importance of specialized systems to support learning of mathematic disciplines. Most of the e-learning applications use multiple-choice or fill-in-the-blank test items with "built-in" correct answer to check student understands of the topic. The advanced programs may check a student's solution of simple problem by calculation according to the pre-determined formula. However, solution of many mathematical tasks requires formal transformation of mathematical expressions, thus an e-learning system must

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be able to perform these transformations itself to efficiently assist a student. E-learning systems TerM developed in the Kherson state University contains a "Problem Solver" to assist mastering algebra by schoolchildren. E-book with learning material and a collection of tasks cover a school curriculum for 7-9 forms. The TerM could be used for student's individual work to better understand and acquire skills of algebraic transformations.

The e-learning system is able to check a solution, to solve the task itself and offer not only a result but also a sequence of solution steps. The problem-solving part of the system, based on computer algebra and symbolic transformations, is able to check of the equivalency of expressions, inequalities, and equations. Based on that, the system may generate and suggest a next step of the solution if a student needs some assistance and check the correctness of the step proposed by the student. In a classroom setting, the system supports several students working individually on the tasks assigned to each of them by the teacher. The results of the students' work can be saved in their electronic notebooks and stored by the teacher the same way as it is done with real notebooks in the school (Kartashova E., 2008, p. 11). The project was supported by the Ministry of education and science of Ukraine and the system is now piloted in selected gymnasiums and schools. Being developed in line with traditional schooling, this project is an important step towards intelligent technologies in education, use of ICT beyond just access to traditional resources in digital format.

In Universities, increase of time in curricula intended for individual learning led to the use of LMS to provide access to the learning resources (such as manuals, textbooks, courses, tests etc.), coordinate and manage learning activities, and support virtual community. LMS is used both by full-time and extra-mural (distance) students. Study of engineering disciplines requires extended practice in various problem-solving techniques. For this purpose, Technical Universities offer virtual laboratory work using simulations and interactive 3D models. The most popular tool for students and professional training is NI LabView, which supports emulation of processes, allows for simulation of devices, tools and schemas, as well as distant access to real devices connected to the virtual lab server. The Ivano-Frankovsk University of Oil and Gas is working on a virtual training system, which includes LabView simulations and 3D Studio MAX models of devices used at the gas-transfer stations to train operators. However, even with available modeling tools, this project is rather challenging and exceptional (Bezgaschnuk, 2008, p. 416).

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Some Universities with regional branches use video-conference to offer lectures of leading professors in real time and support video-library; however, this is not a common practice due to high costs related to equipment and technical support at both ends. Some departments explore within the course "Information technologies" [Manako, 2008, 10 p. 262]. The task is presented as a set of questions guiding student understands of underlying ideas and specifics of the technologies and approaches. During the course, the students discuss individual contributions, add new topics, illustrations, cross-references and examples, and re-structure the material to make it useful as a reference reading.

Another interesting example is a new approach to instructional design for life-long learning based on competency analysis for professional tasks and learning objects technology. The approach has been implemented within an international project to create English Enhancement course for the multinational staff (Synytsya, 2008, p. 235). The learning modules of the course correspond to authentic tasks sequenced to ensure stepwise enhancement of linguistic skills and at the same time professional achievement at each stage. Collection of learning objects corresponding for specific learning activities and competencies, as well as templates for language-learning activities created for this course are reused in other language courses requiring the same skills. Competency-based approach is a promising mechanism for efficient professional training allowing enhancing simultaneously knowledge and skills belonging to several subject areas, adapt learning content to the individual needs, and bridge the gap between traditional subject-based education and professional environments.

ISSUES

Issues in e-learning development and introduction in Ukraine may be described according to the types of resources involved, namely, financial, technological, human, and content. Lack of relevant resources could be considered at individual, organizational, and country level. Lack of sufficient funding for education and science, and specifically, for e-learning, causes a domino effect: as a rapidly developing field it requires constant updates of hardware and software, as well as personnel retraining to incorporate new technologies into their professional activities. Because of low salaries, limited access to new technologies and equipment, and lack of funding for conferences and research publications, Ukrainian researchers and educators

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face more challenges than many of their colleagues abroad. Although low financial support is a severe obstacle, even with scarce resources, Ukrainian e-learning may benefit from clear strategic directions, coordination between educational, research and industrial sectors, better transparency, openness and competitiveness. hoice of technologies, both hardware and software, is limited by those offered at the local market, which lacks variety of the international brands. Although some steps to better availability of technology have been done at the government level, such as launching an Academic License program for Universities and localization for some software products, in general, cost of software for educational purposes in Ukraine is higher than in the US or Russia. Serious efforts to ban the use of unlicensed products and absence of academic discounts on content-production tools limit interactive multimedia production and implementation of other educational applications in Ukraine. Recent legislative acts on the use of open source software for Ukrainian state organizations together with the movement on Open Educational Resources supported by the UNESCO [http://www.slideshare.net/csavage/unesco-open-educational-resources-building-knowledge-societies-cambridge-odl-conference-2009 retrieved on 12.12.09] open a way for new projects and initiatives in e-learning in Ukraine.

Information society set forth new requirements to competencies of its members and thus new criteria for successful education processes. Nowadays, ability to work with large amount of diverse information, to search, select, evaluate and process content delivered through several channels is essential for significant part of the population. Nationwide initiative to develop ICT competencies requirements, curriculum and training reflecting specific professional needs would be an efficient mechanism to adapt to new challenges and a powerful vehicle for fostering innovations and economic growth of Ukraine. Some results in creation of information and computer literacy curriculum for educators harmonized with UNESCO guidelines are recently obtained by the UNESCO chair "New information technologies in education for all".

Human dimension in e-learning represented by students, teachers, administrators, and decision-makers reflects low e-readiness of Ukraine in many ways. It may be seen in insufficient ICT competencies for all groups, due to the absence of formal professional requirements in computer and information literacy, as well as in unwillingness to support the grassroots of technological innovations due to the limited "policy and vision" of the ICT

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role in education. Reluctance of administration to recognize benefits of learning technologies and award efforts related to creation of educational content leads to the lack of professional motivation for teachers to be involved in e-learning.

Other negative factors include insufficient normative and legislative base for e-learning and digital resources, limited number of free ready-to-use learning resources in national language, insufficient technical support for educators who does not have necessary technical skills but are ready to collaborate within innovative e-learning projects. (ICT, 2008, p. 5). We believe that steady growth of available digital learning content together with social collaboration environments and intelligent support tools will facilitate acceptance of e-learning as a natural and mandatory part of education at all levels.Comparing availability and use of resources provided by informal communities in Ukraine and abroad one can see that this opportunity is almost untouched though there is an indication of interest in building communities and extending virtual collaboration among educational designers and teachers.

CONCLUSION

In a world of quickly emerging and maturing technologies that shape economy and society worldwide, traditional or evolutionary cultures face more challenges. Their cultural roots, traditions and former victories prevent them from making drastic changes, try new strategies, and establish new goals. They tend to build upon long-term experience, rather than trace tendencies and grasp new opportunities. Sprouts of innovations, easily accepted by techno-oriented society, have still to prove their validity for a traditional one.

We believe that in case of Ukraine, which is anchored by its traditions in research and education, there is a way to make its specifics features, such as centralized administration of education, primarily government source of research funding, and significant human resource potential, beneficial for e-learning growth. To do so, we suggest focusing on long-term goals and taking into account identifiable tendencies in e-society and IT development, such as growth of specialized virtual communities, value of interdisciplinary research, permanent improvements of technology accessibility and interfaces, shortened timeframes for training and technology-based content delivery, etc.

In this respect, more attention should be paid to support professional collaboration, goal-oriented projects and events, and special issues arranged and edited by experts in a particular field of e-learning. Because of the need for combination of specific expertise for innovative interdisciplinary projects require, which could rarely be found within one organization, nation-wide collaboration is essential for raising the level of research contributions. Lack of professional mobility within the country may have a lesser effect for e-learning field due to natural involvement into virtual environments and communities. Support of the inter-regional projects would be beneficial for educational organizations across the country, but also for regional development as a whole. In this respect, we fully support UNESCO's concept of "excellence poles" in a networked community as a model for research and educational collaboration, as a way to preserve and enhance professionalism in a particular field and a mechanism to combine efforts for a specific study. Instead of growing educational monsters, it may make sense to support distributed projects attracting best professionals across the country, to be prepared for the demands of life-long and just-in-time-training. Another important step towards e-learning enhancement in Ukraine would be using of administrative and financial resources for two main purposes. First, raising Ukrainian e-teachers, would it be individuals or teams capable to identify appropriate e-tools for their professional activity and efficiently use them.

As in other countries, adults in Ukraine are in general behind children and students in mastering technology, but only involvement of professional teachers and experts enable filling virtual space with creativity-supporting activities, ethical norms, or culturally rich experiences. Second, focusing funds intended for ICT in education exclusively on creation and support of open and sharable educational resources based on educational and technology standards, including both tools and content. It would guarantee that national resources are used for the benefit of the national education as a whole.

Finally, there is a need to re-define research priorities in e-learning. Overview of the publications in e-learning in Ukraine shows that the majority of the research studies are still focused on models and methods either for student assessment or for individualization of learning process understood as a selection or sequencing of pre-defined learning material. Unfortunately, innovative technologies such as virtual reality, learning games, collaborative tools, mobile learning, educational services etc. are not on the priority list. To

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facilitate e-learning achievements in the long-term period, these directions should be explored, as well as many others exploiting new opportunities for information presentation, manipulation and acquisition.

In general, e-learning in Ukraine has good prospects supported by both research and practice. The spectrum of research, awareness of research results and technologies worldwide, and recent achievements in specific areas make a platform for good progress both in research and in practice of e-learning in Ukraine in the near future.

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http://geography.about.com/library/cia/ncukraine.htm
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Ukrainian Distance Learning System http://www.udl.org.ua
National Technical University of Ukraine 'Kyiv Polytechnic Institute' http://inter.kpi.ua/
Taras Shevchenko National University, Kyiv. http://www.univ.kiev.ua
Ukrainian institute of information technologies in education at the National Technical University of Ukraine 'Kyiv Polytechnic Institute' http://www.udec.ntu-kpi.kiev.ua/ua/resources/dc
Center for distance learning at the National Academy of Public Administration (www.uapa-dlc.org.ua)
Problem laboratory of distance learning at the National technical university 'Kharkiv Polytechnic Institute' (http://dl.kpi.kharkov.ua)
Distance learning in Sumy state University (http://dl.sumdu.edu.ua)
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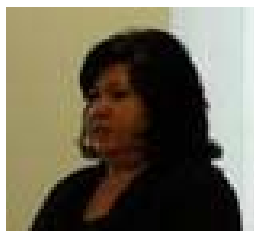
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CHAPTER-41

eLEARNING IN
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ABSTRACT

The learning process has been a passive process for so long. However, with the advent of ICT in recent years has a direct impact on such a process. Online learning was introduced and implemented by western universities.
The United Arab Emirates is no different from other nations that benefited from the ICT in the education sector. Since the formation of the federal government, one of the targets was to improve the education and to implement the latest technologies within such a sector as well others.

In this chapter we aim to show the evolution process that education in the UAE went through. The plans that were adopted in order to make the UAE as a hub for higher education in the region are also presented. The chapter reflects the background of the UAE anthropologically and educationally. We try to show the implementation and usage of ICT in higher education and its relevance to the government's long term plans. Two cases are presented, showing the implementation of ICT and the encouragement of online teaching at two important universities of the UAE. Issues associated with implementing and using of ICT in the delivery of online teaching are also presented.

COUNTRY

The United Arab Emirates (UAE) is a federation of seven emirates - Abu Dhabi, Dubai, Sharjah, Umm Al Quwain, Ras Al Khaimah and Fujairah-

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situated in the southeast of the Arabian Peninsula in Southwest Asia on the Persian Gulf, bordering Oman and Saudi Arabia to the south and to the west and facing Iran in the north and the east. The UAE was established in 1971 when the leaders of the various emirates, led by the late Sheikh Zayed Bin Sultan Al-Nahyan, united to form a federal state.

By mid 2009, the population of the UAE was estimated to have risen to about 6.5 million, around 80% of whom live in the three most populous emirates: Abu Dhabi, Dubai and Sharjah. The capital and second largest city of the UAE is Abu Dhabi. UAE nationals comprise approximately 20% of the population, with the remainder being expatriates from the Indian subcontinent, and Asian, Arab, European, and English-speaking countries. Emirati culture has diversified from one mainly revolving around the religion of Islam and traditional Arab, and Bedouin culture to a highly cosmopolitan society.

The total area of the UAE is approximately 77,700 square kilometres. The largest emirate, Abu Dhabi, accounts for 87 percent of the UAE's total area (67,340 square kilometres). The smallest emirate, Ajman, covers only 259 square kilometres. The UAE stretches for more than 650 kilometres along the southern shore of the Persian Gulf.

The most striking aspect about the UAE is its rapid rise from a tribal society and a subsistence-level economy to one of the most modern and prosperous countries in the Middle East. Oil (mainly) has accounted for the dramatic transformation and economic growth over the past three decades; indeed, the UAE has the world's sixth largest oil reserves and one of the most developed economies in the Middle East. It is currently the thirty-sixth largest economy by nominal GDP, and one of the richest countries in the world by per-capita gross domestic product: $54,607 (International Monetary Fund). The country is fourteenth in purchasing power per capita and has a relatively high Human Development Index for Asia, ranking thirty-first globally.

The revenues of both oil and gas sectors have had helped the Federal Government set a long term strategic plans. These plans include encouraging as well as funding the start and growth of other sectors. Consequently, they have brought extensive foreign investments to the country (Rojewski, 2004). Due to the rapid change in the economy of the UAE, the availability of public amenities became essential in order to accommodate the vast number of workers and investors and other stakeholders.

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As a result, education, health and social development became a high priority, and this was reflected in the Federal Government's strategic plans.

In this chapter we aim to show the reader of the background of the UAE as far as educational and society concerned.

The evolution process that education in the UAE went through has been presented. Furthermore, the use of ICT in the country and the plans of transforming the UAE to be the hub for the region are also shown. We show the usage of ICT in higher education and its relevance to the government's long term plans.

Two cases are presented, showing the implementation of ICT and the encouragement of online teaching at two important universities of the UAE. Issues associated with implementing and using of ICT in the delivery of online teaching is also presented.

EDUCATION

The economic growth of the Middle East is leading to even greater importance being given to the education sector. Competition is intensifying between colleges and universities, and world-renowned institutions (New York University, Paris-Sorbonne, and others) have recently established campuses in Abu Dhabi.

Primary and secondary schooling in the UAE is compulsory to all citizens. The existing educational structure, established in the early 1970's, is a four-tier system which covers 14 years of education: Kindergarten (1-2 years), Primary (6 years), Preparatory (3 years), and Secondary (3 years). There are also technical secondary schools which award a Diploma over 6 years of study.

Table 1 shows the 2005 UAE census by education level (UAE Ministry of Economy Education Census, 2005).

As in the rest of the Gulf region, university education in the UAE began in the second half of the 20th century, through the establishment of governmental supported institutions.

Table 1: UAE Census by Education Level (UAE Ministry of Economy, 2005)

Educational Level	National			Non National			Total
	Male	Female	Total	Male	Female	Total	
Primary School	53,347	45,988	99,335	290,857	79,649	370,506	469,841
Preparatory School	70,968	53,641	124,609	321,071	94,822	415,893	540,502
Secondary School	98,462	95,361	193,823	430,727	194,339	625,066	818,889
Diplomas	8,286	8,358	16,644	81,942	36,583	118,525	135,169
University	27,919	32,764	60,683	301,311	127,075	428,386	489,069
Post Graduate	4,185	2,077	6,262	38,160	13,687	51,847	58,109
Total	263,167	238,189	501,356	1,464,068	546,155	2,010,223	2,511,579

The United Arab Emirates University (UAEU), located in Al Ain, was the first university in the country; it was officially opened in the academic year 1977-1978. Four Higher Colleges of Technology (HCT) were established in 1988, with an initial enrolment of 239 students. Today, there are twelve men's and women's HCTs in Abu Dhabi, Al Ain, Madinat Zayed, Dubai, Ras Al-Khaimah, Sharjah, and Fujairah, providing a variety of programs to over 15,000 students on modern, technologically well-equipped campuses.

Due to the growth in population in both nationals and expatriates, the number of universities has steadily increased. One of these was Zayed University (ZU), which was established in 1998 by the federal government with the exclusive goal of educating Emirati women. ZU has two campuses, one in Abu Dhabi and one in Dubai, governed by a single administration and offering similar programs. In 2006, a new campus for ZU was build by the federal government within the academic city of Dubai and over a total area of 711,000 square meters, at a cost of about $100 million. In 2005, the new campus of the Dubai Men's College was inaugurated in the Academic City Built over an area of 43,000 square meters, costing around $55 million; most notably, it provided a highly digitized environment: everything from assignments and mark sheets to attendance, and of course the library, is online and can be accessed anytime by the 2,000 students and 300 faculty members.

In order to cope with the population growth, in recent years the Council of Higher Education has also authorized the establishment of private universities. The Ministry of Higher Education (MoHE) oversees the accreditation of these institutions and their degrees. There are now a number of excellent private institutions offering a wide range of tertiary-level programs. These include the American University of Sharjah, the American University of Dubai, Sharjah University, and Ajman University of Science and Technology. Abu Dhabi University (ADU) is one of the modern private universities in the region. Established in 2003, ADU has two campuses, one in Al Ain and one in Abu Dhabi, the latter extending over 4 million square meters in Khalifa City. Al Hosn University in Abu Dhabi opened in 2005, is supported by the Abu Dhabi Holding Company (ADHC), and offers programs in Engineering, Business, and Arts and Social Sciences.

The Abu Dhabi branch of the Sorbonne University was established in 2006; it is wholly owned by the Abu Dhabi Education Council, but authorized to establish branches in the rest of the UAE and in the region.

Knowledge Village (KV), was established in 2003 in the Dubai Free Zone for Technology and Media; it houses more than 200 institutions of training and education, which total over 6000 students, a quarter of whom come from the Middle East, the rest are expatriates residing in Dubai. Degree programs offered by KV institutions include undergraduate, Masters', MBA and Ph.D. programs in such fields as computing, technology, business management, life sciences, fashion and media.

Dubai Knowledge Universities (DKU) is being established as a multi-university complex on 2.33 million square meters in the heart of Dubai's Academic City, in the aim of attracting students from the region who are unable to go study abroad. DKU is in its initial phases, and it will take a few years for the project to be completed, at which point it is anticipated to accommodate 20 to 30 universities and house 30,000 to 40,000 students.

Dubai Academic City (DAC), launched in 2006, has been presented as a "global fully integrated academic destination". At a cost of over $3.5 million, its campus will cover some 12 million square meters, over several phases to be completed in 2012.

The United Arab Emirates also has several vocational and technical education centres, which were established to provide practical training for those not interesting or ready for academic careers. Those centres include: the Emirate Institute for Banking and Finance, Abu Dhabi National Oil Company Career Development Centre, Dubai School of Government, Emirates Aviation College for Aerospace and Academic Studies.

The academic staff in most if not all higher education institutions in the UAE are of expatriate origin. No study has been conducted to show the exact ratio between national and expatriates staff in the higher education sector; however, we estimate from our experience that expatriates constitute some 90% of the total UAE academic staff.

Despite significant advances in the technologies assisting in the teaching methods and contributing to the general improvement of the course delivery process, traditional teaching methods are still dominant in the UAE's education sectors, both schools and universities. (Traditional teaching involves face to face interaction between instructors and students where the latter are mostly passive learners.)

The implementation of eLearning in most of the academic institutions is still far from fully adopted. This may be directly related to the fact that the infrastructure supporting the implementations of such technologies is still evolving. However, the federal government has set a strategy which outlines very clearly the urgent need for implementing the most up-to-date educational technologies in order to improve teaching methodologies and learning in all stages (high schools, technical colleges, and universities).

Such strategies are required in order to meet the demands of the local market, accommodate all types of students, and attract large numbers of students from the whole region. These plans have, in turn, encouraged reputed universities to open offshore campuses based in the UAE in the aim of delivering similar courses to students within the region.

ICT INFRASTRUCTURE

The UAE's telecommunications sector is the most highly developed in the region. Although the market was monopolized by Etisalat, the big state company, from its establishment in 1976, a federal government's decree ended that monopoly in 2006 with the licensed second telecom operator Du becoming a new competitor to Etisalat.

The government acknowledges that ICT infrastructure is of a critical importance to the economic development of the country (D. Peterson, 2007). Furthermore, the government recognizes that ICT forms the backbone to most, if not all, of its industries, financial services, e-government, education, and health services (See "General Policy of the Telecommunication sectors in the state of the UAE 2006 – 2010"). In brief, the policy set five major objective; establishing polices and regulatory, promoting and developing new technologies, becoming the regional ICT hub, developing the country's human capital, and encouraging research and development.

Based on four level categories that identify the maturity of ICT level in different countries, the UAE was evaluated as "level three" by the United Nations' Economic and Social Commission for Western Asia (ESCWA) in terms of "ICT maturity" (ESCWA 2003, 2005), indicating the existence of a clearly articulated vision and advanced national strategy but moderately effective implementation plans. An ICT Development Fund launched in September 2005 with the aim of positioning the UAE as one of the most advanced ICT countries in the world and is the first of its kind in the Middle East. Some of the more recent developments resulting from this sponsorship are:

- The Dubai Technology E-Commerce & Media free zone (TECOM) has the largest IT base in the region. It includes companies like Microsoft, Oracle, HP, and Cisco.

- The Dubai Silicon Oasis is often billed as a premiere "purpose-built high-technology park" for the microelectronics and the semiconductor industry.
- Dubai Internet City (DIC) is a conglomerate composed of about 835 companies.

The internet penetration in the UAE is one of the highest in the region. By the end of 2008 it had increased to an estimated 25%, with ADSL/broadband penetration reaching about 11%. Table 2 shows statistics of such usage according to the Internet World Statistics (2009). We should note that the World Internet Statistics does not specify the GCC region (KSA, Oman, Qatar, Bahrain, Kuwait, and UAE) as a-stand alone entity but includes it as part of the rest of the Middle East states.

Table 2.
Comparison of Internet Penetration rate among
GCC states between years 2000 and 2009

State	Population (2008 Est.)	Internet Usage in Dec. 2000	Internet Usage in 2008	Penetration (% Population)	Internet User Growth (2000-2008)	% of GCC Users
Bahrain	718,306	40,000	250,000	34.80%	525.00%	2.39%
Kuwait	2,596,799	150,000	900,000	34.70%	500.00%	8.59%
Oman	3,311,640	90,000	340,000	10.30%	277.80%	3.24%
Qatar	824,789	30,000	351,000	42.60%	1070.00%	3.35%
Saudi Arabia	28,146,657	200,000	6,380,000	22.70%	3090.00%	60.87%
United Arab Emirates	4,621,399	735,000	2,260,000	48.90%	207.50%	21.56%
TOTAL GCC	40,219,590	1,245,000	10,481,000	23.30%	1296.20%	100.00%

Finally, the Federal Government has recently developed policies to accelerate the growth and development of the telecommunication sector within the UAE and commits the government to enabling it to be the premier ICT hub in the region.

Figure 1.
Comparison of Internet Penetration rate among
GCC states between years 2000 and 2009

GCC Penetration Rate between years 2000 and 2009
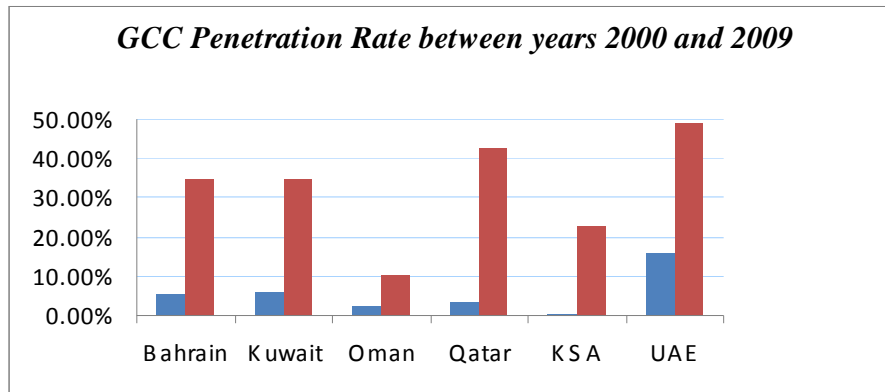
ELEARNING AND ICT INTEGRATION

As stated above, the UAE – with its state-of-the-art digital infrastructure – was bound to develop important programs in e-business, e-government, and e-learning. In the academic area, one should first describe, even briefly, the extensive integration of ICT tools in all areas of campus life: registration of students, teaching and instructor-student interaction, display, reporting, and recording of grades, library services, financial services (from salary stubs to phone usage charges), etc.

For example, at the American University of Sharjah (AUS), the Banner management system is extensively used for academic purposes (particularly registration, tracking of sections, etc.). Training sessions are regularly conducted for the staff on the extensive capabilities of Banner. It includes a number of self-service features which allow staff, faculty, students, and advisors, to access online and personalized university services and efficiently perform various aspects of their work.

For example, Banner makes it possibly and easy for faculty and staff to view student transcripts online, follow a student's academic progress (through grades and advisors' notes recorded each semester), enable groups of faculty, rather than individual faculty, to advise students, communicate through collective email among groups of advisees, etc.

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Finally, Banner greatly helps conduct academic assessments of various groups of students by providing admission officials, department chairs, and student advisors the data and reporting tools which allow them to follow students entering each program, school, or department in a given term, their background (high school achievements, systems of education, TOEFL, SAT, GCSE, and placement test scores, etc.), students encountering academic difficulties, profiles of students dropping from the school/department/program or transferring to another one (within), etc. (Illinois Institute of Technology, Faculty Introduction to the Banner System, see the reference).

What concerns us here chiefly is how such an all-embracing management system is integrated with online instruction and learning platforms. At the American University of Sharjah, the "iLearn" (Blackboard) e-learning platform has been in adoption since 2004. Previous to that a WebCT system was used for a few years, and for a some time the Moodle platform was adopted by a number of AUS faculty members; however, iLearn has since been made the unique and unified online learning platform on campus. Most importantly, it has been integrated with the afore-described Banner system.

In terms of tools, iLearn makes it possible and easy for faculty members to post their syllabi and other course information (office hours, announcements on assignments and exams and such), manage class rosters and student work (amount and type of access) and performance (grades, quiz results, questions missed), interact with the students (email students and conduct synchronous chats and asynchronous board discussions), post grades electronically, compute averages, etc. This integrated system also allows faculty members to manage various projects and research groups (including administrative and scientific committees and groups), making it possible for team members to share data and documents electronically.

E-learning has had a boom in the UAE over the past decade or so. First, mention should be made of the "E-ducation Without Borders" bi-annual conferences that have been organized in the UAE since 2001; these global "by the students, for the students" conferences aim at exploring various aspects of the e-learning revolution. Attended by roughly 500 students from over 50 countries, each conference gives students the opportunity to present papers (selected according to academic criteria set and applied by panels), discuss, and issue recommendations on such matters as "the impact of e-learning on the global educational community", "implementation of technology in education and life-long learning", "strategies for the efficient

delivery of e-ducation", etc. We should also highlight the series of semi-annual 1-day workshops on e-learning that has been organized for a number of years by Zayed University and the Higher Colleges of Technology in the UAE, workshops which regularly draw some 200 participants. These meetings are intended as a way of supporting faculty in their online pedagogical developmental efforts, forums where instructors report and exchange experience in the field of e-learning and instructional technology.

The UAE's national University (UAEU) has also been making significant strides in the adoption and implementation of online learning. In the 2007-2008 academic year, the UAEU had 667 faculty members, about 400 "General Requirement Unit" instructors, with an additional 80 academic instructors and 68 teaching assistants, for a total of 12685 students (2824 male and 9861 female students) (UAEU Facts & Figures, 2009); it is by far the largest university in the country and one of the most important in the region. Online learning activities at UAEU took off around 2002, the same statistics show:

- From less than 200 in fall 2002, the number of course sections active on the university's Blackboard system quickly jumped to almost 600 the following semester and has been growing slowly since then to about 1000 today
- The number of active users jumped from about 1200 in fall 2002 to about 4000 in spring 2003 and has steadily increased to about 8000 today.

Similarly, Abu Dhabi University (ADU) implements the Logos system for multi-academic purposes. These include online registration, advising students, and tracking students' progress. Due to the importance of the Logos system, training sessions are regularly conducted to all staff that uses it, in order to make sure that they are providing its services efficiently.

The Logos system is also used to forecast the number of admissions each year/semester for each program, giving department chairs and deans the ability to plan ahead. Furthermore, Logos also allows admission officials, advisors, and chairs to follow each student, starting from their high-school backgrounds. Faculty members have their own platform space, which allows them to view the list of their advisee's schedules as well as easily contact the students through two functionalities: by email or by SMS. Furthermore, ADU uses the Board, which enables faculty to publish their course materials

online, including syllabi, lecture notes, assignments, announcements, review questions, useful articles, etc. Students, on the other hand, can use the Board to submit their work online, which helps the instructors check the work with plagiarism-detector software.

Moreover, students can use the Board to view their progress, receive any announcements, and contact their instructors. They can also communicate with other university departments such as registration, admission office. An extension was added to the Board recently, which enabled the students to request official letters. Recently ADU has implemented the *Accuplaceronline* on the Board, which allows the English department to evaluate the English level of students, who are required to take the TOFEL test prior to joining the university.Both Board and Logos systems are linked together to give the students a centralized point which allows them to use various components of the system. For instance, students can view the syllabus of various courses during the pre-registration process, which takes place towards the end of each semester. Instructors and advisors can monitor the registration process and intervene whenever a situation develops or any need surfaces.

Due to the background of the students, there is still sometimes a need to train the students on the ways that they can use all the ICT facilities that are available to them within the university.Implementing ICT facilities within Abu Dhabi University, and in other educational establishments, has extended the education horizon from being within the university lecture theatres and labs inside the campus to a wider world that has no borders (Ati 2002). Furthermore, implementing the ICT facilities within ADU has enabled the students to have access to information at any moment, and this in turn has certainly increased their educational performance.

In comparison, AUS and ADU are implementing similar ICT facilities with different vendors. For instance, The Banner management system used at AUS is nearly identical to the Logos system used at ADU. Likewise, the iLearn system used within AUS is similar in many if not all regards to the Board system used at ADU.

CASE STUDY

Let us now focus our investigations on the American University of Sharjah and Abu Dhabi University as specific examples of institutions from the UAE and the region and use those examples to highlight the general program of

implementing online learning formats as appropriate and relevant to its circumstances.

At AUS, e-learning efforts started in 2001 with forum discussions where "early adopters" presented to the campus community the general features of online learning as well as their own individual efforts. At about the same time the WebCT course management system was purchased and installed by the university administration to support and unify the efforts of faculty interested in adding an online dimension to their courses. This was deemed a worthy project to pursue both because the university already enjoyed a sophisticated technical infrastructure (fast T1 Internet lines, wireless campus-wide Internet network, fully electronic library database, etc.) and because AUS students do not suffer from the computer/Internet illiteracy or the English-language deficiency, factors that were previously noted as a major hindrance to the global success of online teaching schemes (Guessoum 2000).

In 2003 AUS co-organized, with the UNESCO Cairo Office, a week-long hands-on interactive workshop on online teaching in which about 30 participants from Gulf universities were trained in creating, managing, and delivering high quality, interactive, fully online or web-enhanced courses.
Since then dozens of instructors at AUS have added an online components to their courses, now making the hybrid (blended online and in-class) format of teaching the dominant paradigm across the university. One course was successfully offered fully online three times (by one of the authors of this article) through WebCT in 2004 and through Blackboard in Spring 2005 and 2006. In that time, Moodle also gained popularity on campus, mainly among the language teachers. In fall 2005, the university established "iLearn" (a Blackboard platform for online learning, interaction, and course management) as a unified system, where all university courses automatically receive space for pedagogical interaction (uploading/downloading of lecture notes, electronic submission of assignments, online quizzing, discussion boards, etc.) and students get automatically added to their courses' online components. In parallel two specialists have been hired to run the system and assist the faculty in developing their courses' online segments. All these efforts have greatly increased and improved the online learning paradigm at AUS, particularly in its hybrid format. In fall 2005, 137 faculty members (out of a total of about 270) were active on the iLearn/Blackboard online university system; 364 course sections had online activities of various

sources, and 3800 students (that is almost 90 % of the 4300 undergrads and grads) were active on iLearn.

In the Fall 2008 semester, 422 different courses were offered, totaling 1058 sections (with an average of about 25 students each), all of them "on-ground" -no fully online course offered in that semester. Only 25 of those sections made no usage at all of the course management system; on the other hand, 490 sections used the forum (or "discussion board") tool of the system, 775 tests were made online; more than 40,000 content items were uploaded by the instructors and made available to the students, so that in the end over 5.2 million hits were made by students accessing various parts of the system (Guessoum 2009). Moreover, the usage of these online tools has increased semester after semester by 15 to 20 % each time, with some tools (e.g. forums) being used much more frequently (an increase of more than 50 % over the last semester).

As mentioned above, Abu Dhabi University has made every effort to use the available technologies and implement ICT facilities in the aim of delivering its curriculum. With the current setup, whenever a course is assigned to a faculty member, the Logos system assigns space for that course.

This space is generally used by the instructor to upload all relevant course materials, including; lecture notes, assignments, and any other assessment materials. Students are automatically added to these course spaces when they register, and they can thus access and download course materials, view any announcements, and submit their work online.There has not been any attempt made until now to deliver purely online courses using web-based systems.

However, ADU makes use of its video conferencing facilities to deliver courses to classes located in different campuses. Several such courses have successfully been delivered using such ICT facilities. Due to the nature of ADU and the social culture of the UAE, students are segregated based on their gender.

This arrangement has also encouraged a number of faculty members to make use of the video conferencing facilities to deliver courses between classes within the same campus or across campuses.At present time, ADU is looking into the best ways to improve the current structure and possibly to implement online courses. Servers have been purchased as part of this new setup along with high speed connections. Staff with previous experience in both setting

up and delivering digital courses will be part of those forums that are responsible for adopting such technologies in the forthcoming months.

ISSUES

It may be somewhat premature to try to assess the degree of success of these online learning efforts and experiments (at various UAE institutions), but one may at least mention some general observations related to students' approach to online courses or components of courses.

It is widely believed that online learning is an excellent approach for mature, independent, and disciplined students, and so one may be surprised to note (although the experiments that lead to these conclusions are few and limited) that AUS students who have undertaken fully online education by and large showed amazing readiness and quick adaptability to this format. Of course, students needed to be coached into the new learning approach and its requirements, but once they digested and got used to that, students found the flexibility of the format as well as the digital nature of the course (quick perusal of the material, hypertext jumping, multimedia approach to learning, etc.) "Clicking" perfectly well their digital lifestyles. This digital nature of learning and interacting was a double-edge sword, however, because it greatly enhanced students' ability to plagiarize, something they seem to consider as a normal feature of today's world, which in their minds must be regarded as an "open knowledge world". There was also initially one other concern about the potential difficulty of implementing e-learning in this region, namely the weakness and inability to some extent of students to read and write effectively and efficiently enough to undertake online courses, at least in the fully online format.

This concern, at least in the two fully online experiments carried out at AUS, turned out to be greatly exaggerated and did not constitute an important pedagogical impediment.

Faculty attitudes and experience with respect to online teaching have not been surveyed, at least at AUS or, as far as we are aware, in the UAE. The only study of this important aspect of online education and its potential implementation in the Arab world was conducted by Abouchedid and Eid (2004), where a survey of 294 professors' attitudes regarding various e-learning issues was undertaken at Notre Dame University in Lebanon. The

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findings showed a large general acceptance and disposition toward online learning as a tool, but two major concerns surfaced clearly:

1. Distrust of online examination schemes, and

2. Likening of large-scale online dissemination of knowledge to a "mass-production assembly line process, where a division of labour between educators and communications specialists replaces the more craft-oriented approach of face-to-face education."

One can sometimes encounter further skepticism from some faculty, who decry other aspects of online teaching, e.g. the time-consuming facet of such technological undertakings as well as the efficiency and effectiveness (or lack thereof) of these tools. In short, these critics ask: what is the pedagogical problem that we are trying to remedy to, and is this a reasonable approach to addressing such issues?

The first question can be answered at least partly by pointing to the acute passivity of students, especially in regions of the world where students are brought up to accept what the wise and all-knowing teacher transmits to them; indeed I have observed students who are completely transformed from a very passive person on-ground to a very active one online. (Online teaching is of course not a miracle solution to this problem, but it can certainly help.)

The second challenging question is, however, more difficult to answer, especially when faculty find themselves having to perform large portions of the online teaching operation, that is without proper support and assistance from technical and pedagogical specialists.

CONCLUSION

After a brief review and presentation of the UAE historically, socially, and economically, we have in this chapter focused on the country's education sector. We pointed out the UAE's fast economic growth and – with its special demographic makeup and financial resources – its bold ambition and emergence as a higher education hub. We also gave a general overview of the country's higher-education landscape, which we showed to be particularly varied, encompassing several "academic cities" and "knowledge villages", state universities (including a few female-only ones) and colleges of technology, and foreign-style universities (American, British, French, etc.), with both home-grown and local-branch formats.

The main parts of this chapter were devoted to e-learning efforts and implemented (and on-going) strategies to connect ICT developments with modern educational methods. We surveyed the current ICT infrastructure, in the UAE in general and in sampled universities in particular. World statistics showed internet penetration in the UAE to be highest of the GCC region (KSA, Oman, Qatar, Bahrain, Kuwait, and UAE) with a percentage of 48.9.

Taking the American University of Sharjah and the Abu Dhabi University as examples, we showed how general management systems such as Banner and Logos are fully integrated with the online-learning support platforms like the Blackboard-based iLearn and Board. ICT and elearning thus become one seamless structure allowing administrators, instructors, and students to coordinate the learning, testing, and monitoring (of students' performance and progression). We also showed how elearning itself, as an educational paradigm, has made significant inroads within the higher education landscape of UAE institutions. In effect, "hybrid (in-class/online) learning" is now practically the dominant educational paradigm.

Finally, we looked at a few issues characterizing this brisk development of the UAE's higher education landscape, ICT infrastructure, and advanced, partially online learning/teaching methods. In particular, we considered, albeit briefly, the extent to which the students' culture has helped or hindered this rapid shift in the educational paradigm, e.g. the issues of language, digital culture, and plagiarism. Similarly, the attitudes of instructors with regard to "hybrid teaching" have in a few cases between surveyed.

We conclude that the UAE constitutes an extraordinary case of rapid development in every regard, not least in the educational and technological areas. The way in which higher education, with its variety of formats and styles, is evolving in this country, and how the demographic and financial resources are driving it, all constitute elements of an extraordinary experiment which must be followed closely by all observers.

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e - LEARNING IN UZBEKISTAN

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ABSTRACT

Advantages brought by development and expansion of information and communication technologies are more and more realized in the world today. Their revolutionary impact spread on state body's activities, civil society institutions, economic and social spheres, science and education, culture and people's life style. Those provide people with opportunities to widely use their potential and serve for achievement of interrelated goals of ensuring the sustainable economic growth, improvement of well-being, strengthening of democracy, peace and stability. Uzbekistan is not aside of those processes, it participates more and more actively in formation of global information society.

The long-term strategy of social and economic development of Uzbekistan is also oriented to information society, create and realize of prerequisites and conditions of its formation. Those strategies allow Uzbekistan to integrate into the world economic. To implement those strategies; a number of legislative and regulatory acts were adopted. In particular, Decree of the President of Uzbekistan #3080 dated 30 May 2002 determined objectives of development and implementation of information and communication technologies.

Also in accordance with this Decree started development of computerization and information and communication technologies, the customs and tax privileges have been set, measures on stimulation of entrepreneurship have been determined.

COUNTRY

Uzbekistan is a landlocked country stretching 1500 km west-to-east and 1000 km north-to-south, sharing borders with Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Afghanistan.

The climate is continental and relatively dry, with low rainfall, long hot summers and mild winters.

The country has significant reserves of natural resources including large deposits of gold, copper, lead, zinc, uranium, natural gas and oil. It has the largest population of the five Central Asian Republics, recorded at 25.5 million in 2003, of which 77.2% are Uzbek, with the remainder being Russians, Tajiks, Kazakhs, Karakalpaks and Tatars. Of the total population, 15.3 million live in rural areas, and 9.2 million -in urban areas (Wikipedia 2009).

Figure 1.
A map of Uzbekistan

Source: http://www.pickatrail.com/jupiter/map/uzbekistan.html
Retrieved on 1 June 2009.

The economy of Uzbekistan is influenced by its geography. The country is situated in the basin of two main rivers: the Amudarya, which runs from Tajikistan and provides the Uzbek borders with Afghanistan and Turkmenistan, and the Syrdarya, which flows through Kazakhstan.

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The agricultural sector is extremely important to the Uzbek economy. The country is one of the world's largest cotton producers, with cotton being one of its primary export earners. Other significant agricultural products include raw silk, fruits, vegetables, grapes, melons, significant quantities of which are exported to neighboring countries.(see Figure 1. A map of Uzbekistan)

The East of the country contains the fertile region of the Ferghana Valley, which is densely populated. The Ferghana Valley Region contains much of the country's industrial base, both developed during the central planning era and independence.

The Ferghana Valley, having a long history of irrigated agriculture, produces a significant proportion of agricultural output. To the South, Surkhandarya and Kashkadarya are strongly agricultural regions, though the latter is getting known with its gas production.

The regions in the West are mainly industrial (mining, chemicals and oil refinery and etc.) with tourist centres of world-wide importance, such as Bukhara and Samarkand. Large and sparsely populated Karakalpakstan to the North West of the country is arid with little industrial activity. Both industry and agriculture in Karakalpakstan are negatively affected by the Aral Sea disaster.

Since independence the Uzbek's Government's economic policies were largely protectionist, including non-convertibility of the Uzbek Sum (though this has changed to some extent in October of 2003 after the introduction of convertibility), and the reliance on cotton as a major foreign exchange earner. Economic reforms in Uzbekistan were gradual. This step-by-step approach intended to achieve:

- economic independence by way of curtailing imports through their replacement and self-sufficiency with energy resources and food products;
- reorientation of the economy from raw materials production towards the creation of a competitive industrial structure;
- expansion of export potential and increasing its gold and hard currency reserves to ensure stability of the national currency;
- creation of new opportunities and improving living standards.

To this day the role of the state in the economy is sizable although it continues to decline. The share of the non-state sector in the Nation's GDP in 2001 was 74.1% however this figure varies from sector to sector (e.g. 99% in agriculture, 59.4% in services rendered to population-Wikipedia 2009). The state still exercise a fair degree of control on the non-state sector. For example, the major part of agricultural production still depends directly on government targets for cotton and grain. With all the achievements in maintaining political and economic stability, a number of problems emerged during the transition period, including the decline of living standards, growing unemployment and an increasing gap between the poor and the rich.

With a human development index (HDI) of 0.694 in 2003, Uzbekistan ranks 111 out of 177 countries, according to the Human Development Report 2005. The country's HDI scores and overall rating have remained stable over the years since independence. Disparities between regions and rural-urban areas have become more apparent, with the strongest indicator of vulnerability to poverty being the region of residence. Sixty-three percent of the population of Uzbekistan lives in rural areas, where approximately 35 percent are likely to be poor.

The painful process of transition had a drastic influence on the vulnerable strata of the population: young families, unemployed, families with many children, female-headed households, pensioners, invalids and the youth. It resulted in the reduction of consumer basket, medical services availability, access to school and after school education, access to energy suppliers (gas, coal), to services of infrastructure and transport. Even a relatively generous government welfare system was unable to stem the negative impact brought about by transition. The process of transition continues to be a defining feature of Uzbekistan's development. However, in the situation of macroeconomic stability there is a need to focus efforts on the improvement of living condition of population.

INTRODUCTION

Starting the last decades of the 20th century the world has been undergoing radical changes capable to totally transform the lives of the people–their work, leisure, means of communication and even attitude towards oneself. Sweeping development of information communication technologies are in

the core of these changes, and diversity and opportunities for their application are limited only to the creativity of the human being.

ICT are rapidly transforming the world. These changes are imminent and immensely broad, and their pace is growing exponentially. Along with fundamental economic implications, information revolution brings equally significant advantages not only to developed but to developing nations as well and many of them have been duly appreciated by the people in various regions of the world. Today growing predominance of information component of human activities above its other forms and components has become evident. Therefore, the word "information" has gained indeed a magical meaning and contemporary information and communication technologies are acknowledged as main driving force of world economic and technological development, multiplying current knowledge and moral values, expanding the use of advances in science and technology of 21st century. In this regard, ICT development in Uzbekistan was deemed expedient, being essentially a logical follow-up of monitoring of ICT development. In order to draw a comparison between the IT development indicators studied in this review with the outcomes of earlier conducted research of Assessment of Electronic Readiness of Uzbekistan (2001) and Monitoring of ICT Development in Uzbekistan (2003), the indicators by following sections were tracked:

- Access to global information resources
- ICT education;
- Public use of ICT;
- Electronic commerce;
- Public policy in ICT sector.

EDUCATION SYSTEM

Education overview
The level of education in Uzbekistan corresponds to the parameters that are typical for the leading states of the world. Ninety-nine per cent of country's population is literate; the principle of general 9-year education is still preserved. Judging by the indices of educational level,

Uzbekistan is among the leading countries of the world. The country has managed to preserve the state system of training specialists, thus ensuring wide access to education for all strata of the population. The reform of

educational system and training the national specialists is a state priority that is embodied in the National Program on training the personnel and the Law on Education.

In the sector of pre-school education the network of home kindergarten and complexes of "kindergarten - school" has been formed, as well as 800 groups, where children can take up art, music, foreign languages and basis of computerization.
Over 400 academic lyceums, secondary schools and colleges have been formed at the expense of state investments. On the basis of the Decree issued by President Islam Karimov, On Establishing New Institutions of Higher Learning, dated February 28, 1992, a number of new universities and their branches were founded in the country.

In 1997 the government of Uzbekistan started holding the second stage of reforms in the field of education. At present, any school can choose that program, which more completely meets its requirements and type of teaching, which means a partial decentralization in the system of education. The Asian Bank for Development allotted its credit to the government estimated at US $ 40 million to purchase new text-books for schools and US $50 million for the development of professional institutions network. The earlier educational system required 11 years of compulsory schooling for both men and women. In 1992 the policy decision was made to change from 11 to 9 years of compulsory education. After nine years of compulsory schooling, students can prepare for higher education in tenth or eleventh grade or turn to vocational training. After graduating from any type of secondary education, an individual can enter a higher education institution to obtain a bachelor's degree and continue study toward a master's or doctoral degree.

Budget constraints and other transition problems following the collapse of the Soviet Union, have made it difficult to maintain and update educational buildings, equipment, texts, supplies, teaching methods, and curricula. Foreign aid for education is desperately needed, but has not been sufficient to compensate for the loss of central funding.

When viewed in general, the Uzbekistan educational system includes:

- Preschool training (preprimary-from three to six years old)
- General secondary education (from 6 to 15 years old)

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- Secondary vocational education (from 15 to 18 years old)
- Higher education (undergraduate and graduate-from 18 years old).

Girls and boys are legally considered equal and study in the same classes and schools. Schools are open to all ethnic groups, and minorities in schools are rarely an issue.

The academic year begins on 2 September (the first of September is the Independence Day) or the first working day of September. The academic year ends in June for secondary schools and in July for higher education. Russian was a common language for over 100 nationalities living in the Soviet Union and played the same role as English for the United States. It was also the Lingua Franca of the socialist world that included Bulgaria, Poland, Mongolia, and other European and Asian countries. Without Russian as a common language, Uzbeks (and other ethnic groups) would have to learn Ukrainian, Belorussian, Moldovian, Armenian, and many other languages to communicate with the multinational population of the Soviet Union. Therefore, until 1991, Uzbeks preferred schools with instruction in Russian for their children. To not do so would have put them at a great disadvantage socially. After Uzbekistan gained its independence, Uzbek (not Russian) became the official language of instruction. In 1998-1999, some 76.8 percent of pupils at day schools were educated in Uzbek.

Examinations in the educational system of Uzbekistan are primarily oral. Universities, institutes, and some colleges still have entrance exams. Course exams occur only at the end of the course (semester). State exams are taken at higher education institutions at the completion of all coursework. The grading system of Uzbekistan is numerical. The highest grade is 5 (excellent=A), then follows 4 (good=B), 3 (satisfactory=C), and 2 (unsatisfactory=F). One is never used. Final grades are determined by test scores, papers, attendance, and class participation. Because compulsory education is freely provided to all children of Uzbekistan, private schools have a difficult time justifying their existence. In fact, they were banned in 1993. Also, since Uzbekistan Law declares the separation of education from religion, there are no religious schools.

However, in 1999, the establishment of the Tashkent Islamic University was allowed. Computer technology, thanks to international assistance, is being introduced to educational institutions and training centers. In 1994, the Central Asian Telecommunications Training Center (CATTC) was

established in Uzbekistan under the Tacis Program of the European Commission. Training at the CATTC is provided using modern teaching aids, active methods, and individual and group methods by specialists and experts in different fields. The Computer Center at the University of Samarkand provides computer service to departments and research units and collaborates with other institutions and the private sector to run short training courses. At the secondary school level, computers are still rare.

As a result of decline in funding, the printing of books, textbooks, and other publications face numerous difficulties. This problem is common for all NIS countries. Nevertheless, despite obvious difficulties, according to UNESCO, Uzbekistan schools supplied about 60 percent of textbooks as a whole and for some selected subjects up to 100 percent. Publishing houses produced about 149 million copies of over 1700 various titles. From 1992 to 1997, some 174 textbooks with over 53,000 copies were published, including 138 original, 19 translated, 8 parallel in 2 languages, and 9 experimental textbooks. About 170 various tutorials and educational literature in 7 languages are published. Audiovisual materials are usually manually prepared by teachers. With the high price of copying and low salaries, teachers and professors must be creative. In the Soviet-type higher education institution, most students studied for a full working week (five to six days a week, six to eight hours of classes a day). Evening and correspondence courses were also popular.

The first and the second year of the curriculum usually included the study of social science with similar course requirements for all students. Specialization began in the third year and continued in the fourth year. Within this period a student had between 4,500 and 5,000 face-to-face hours of instruction in 20 to 30 subjects, depending on the field of concentration. Curriculum included general subjects like philosophy and economy, specialized subjects determined by the chosen profession, and very specific courses depending on the deeper specialization. Curriculum was very rigid and equal for all students. There were no choices. In the modern system higher education institutions, curriculum is certainly less rigid.

However, the authorization of the curriculum is still the responsibility of a ministry, not a particular institution. The expansion of curricula, including the addition of courses in French, Arabic, and English, has placed new stress on a limited supply of teachers and materials. In the mid-1990s, a major curriculum reform was begun. Western experts advised:

- a more commercial approach to the mathematics curriculum
- more emphasis in economics courses on the relationship of capital to labor
- more emphasis in social science courses on individual responsibility for the environment the addition of entirely new subjects, such as business management.

Because such changes involve new materials and a new pedagogical approach by staff, the reform period is estimated at 10 to 15 years. The current transformation of the educational system is performed along educational models in developed countries. According to Gulyamov, "During the process of developing the National Program the experience of reforming education in more than 30 leading countries in the world has been studied" (Gulyamov 1999).

In 1997, President Karimov founded "Umid," a program providing students with educational fellowships for obtaining education abroad. By the year 2000, over 700 students have been awarded the "Umid" Presidential Scholarship to pursue graduate and undergraduate degrees in the United States, the United Kingdom, Germany, France, Italy, and Japan. Certainly, returning graduates are expected to bring back "the influence," and those who have finished their studies are employed by the State. The Uzbekistan educators established contacts with the United Nations Organization and separate countries like France, Germany, the Republic of Korea, Turkey, and the United States. Many organizations like Peace Corp (USA), ACCELS (USA), British Council, Merci Project (Great Britain), Goethe Institute (Germany), NAFE (USA), and Save the Children Fund (Great Britain) participate in the educational efforts undertaken by Uzbekistan. Another example is the American Council on Cooperation in Education (ANCALS) which within 4 years helped over 222 Uzbekistan students get education in the United States. Finally, within only 2 years, 25 Uzbekistan schools got the certificates of UNESCO Associated Schools Project (ASP).

An American Educational Advising Center (EAC) funded by the United States Information Agency (USIA) and administered by the American Council for Collaboration in Education and Language Study (ACCELS) was established in Tashkent to assist individuals interested in studying, training, and/or pursuing research in the United States. Tashkent EAC also monitors three similar regional educational advising centers located in the other cities. EAC provides ongoing training for the advisors.

Finally, the European Training Foundation (ETF) established an observatory to monitor the vocational education and training in Uzbekistan. It also disseminates the language training programs and helps the European Commission with the implementation of the Tempus program. Since 1994 the latter has financed over 12 projects, including the restructuring of the Geography Faculty at Samarkand State University and the development of a new history curriculum at Tashkent State University. Education has and will continue to play a significant role in development. First, it increases an individual's internal potential, self-respect, and self-esteem. Second, it makes an individual a better prospect for employment. Third and most importantly, an educated individual gives more back to the society.

The National Program of Training
The National Program of training specialists and the Law on Education have laid the foundation for reforms of the educational system in Uzbekistan. The National Program is oriented to the formation of a new generation of graduates with high professional and general culture distinguished for their creative and social activity.

The program, among other things, stipulates the formation of absolutely new structures - the academic lyceums and colleges. On February 24, 1998, the Cabinet of Ministers adopted a special decree on organizing lyceums, colleges and their management. The reason for the formation of them lies in the fact that students will acquire not only basic but also specialized knowledge on certain disciplines for further training in an institution of higher learning.

Within 3 years students get trained 2-3 professions. Today there are over 400 academic lyceums and professional colleges in the republic. There are 246 specialized secondary schools where 250,000 students study 170 specialties.

Higher Education
Great attention is paid in the republic to the improvement of educational system and training of qualified specialists. On the basis of the president's decree dated February 28, 1992, twenty-four new institutions of higher learning and their branches to train specialists for principle branches of the national economy were established.

Today there are 59 institutions of higher learning function in the republic, including 16 universities, 39 teacher training institutes, medical, technical,

economic, agricultural, and other institutes. About 300 thousand students master 276 specialties there.

The oldest higher Institutions in Uzbekistan are the National University named after Ulugbek, the Technical Institute (Polytecnical Institute). Since 1991 the number of higher educational institutions has increased by 30 %. New higher educational institutions have appeared: the University of World Economy and Diplomacy, Academy of State and Public Structuring, Academy of Armed Forces, Academy of Ministry of Internal Affairs. There is also few branches of foreign universities, such as Branch of Lomonosov Moscow state university, Russian University of oil and gas, Singapure university of management and others.

INFORMATION INFRASTRUCTURE AND ICT

Existing information infrastructure in Uzbekistan is based on various telecommunications networks. Local, long distance, and international telecommunications and broadcasting networks are most accessible for the public.

But there is a sharp distinction between local networks in urban and rural areas in various criteria such as type of station (digital, analogue, quasi-electronic), quality of the services provided and capacity to provide additional services.

Coverage of populated areas with digital telecommunications networks made up 37.3 percent nationwide, including 100 percent in regional centers, towns – 86.2 percent, and district centers – 33 percent. According to the survey data, number of computers nationwide amounted to circa 2,202.9 thousand as of July 1, 2008.

Hence, penetration of personal computers per 100 residents reached 10.34 PCs [29].

Internet services
Development of broad digital transport network has become the platform for introduction of modern technologies of data transfer and new multimedia services to meet all needs of all categories of users of these services, including Internet services.

Meantime competitive environment was in the making, typical of rapid growth in the number of operators and Internet service providers. (see Figure 2.).

Figure 2.
Rapid growth in the number of Internet users[30]
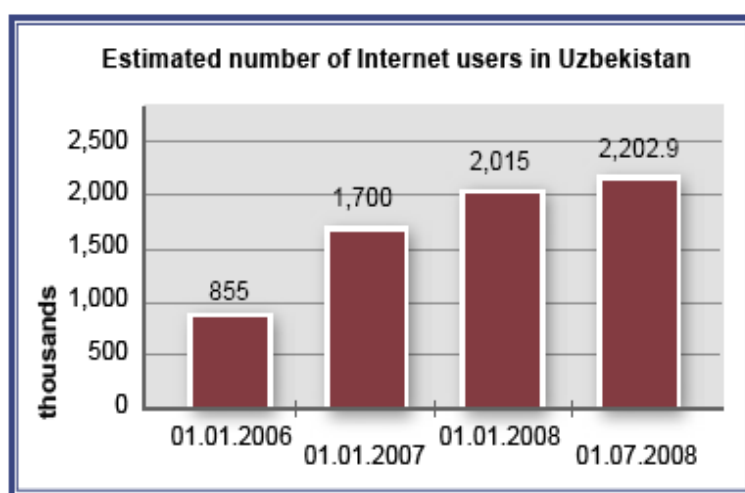
Figure 3.
Operators and Data transfer network providers[29]
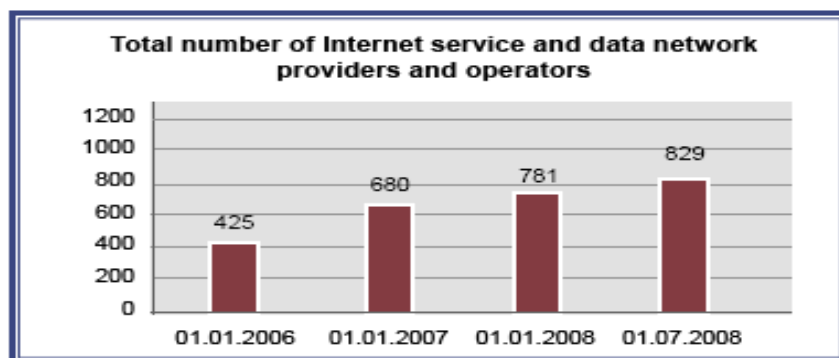
As of July 2008, the number of Internet service providers made up 829, which is 1,5 time more than in 2006 (see *Figure 3.*). Public Internet access centers (Internet café, Internet clubs, Internet centers. etc) account for 82 percent of the Internet service providers. Prevailing majority are also

located in Tashkent. There is buoyant growth in the number of registered secondary domains in .uz zone, which is vividly visible in the following table (see *Figure* 4.). If total number of second-level domains stood at 7000 in the end of 2009..

Figure 4.
Increase in the number of second-level domains in .uz zone[30]
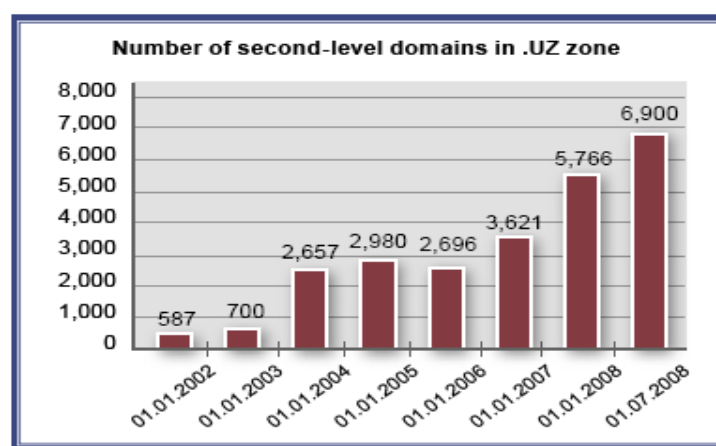

There has been a growing awareness about the Internet among the population and business entities. Thus, the highest level of the Internet access coverage (as a percentage of the total population) is in Tashkent city (51.09% of the population), and Bukhara, Samarkand, Syrdarya and Kashkadarya regions.

Affordability of Internet
Along with the pace of computerization, rates of Internet access were also tracked in comparison with purchasing power of population (see Table 1.) It is clear from the data above that the fees for Internet access started to decline, which is primarily due to emerging competitive environment in internet services market. The Internet service providers have last lowered their Internet access prices in 2006. The decline occurred mainly within the dial-up access segment – the Internet access price for 1 hour has declined from an average of USD 0.37 to USD 0.34. For residential (individual) broadband subscribers there were reductions in installation and monthly fees. Some providers have just included an additional free traffic to every plan with monthly fee.

Internet Service Provider	01.01.2006		01.01.2007		01.01.2008	
	1 hour access (USD)	Unlimited access (USD/month)	1 hour access (USD)	Unlimited access (USD/month)	1 hour access (USD)	Unlimited access (USD/month)
Sarkor Telecom	0.48	80.00	0.40	66.00	0.40	66.00
BCC	0.34	76.27	0.32	38.76	0.32	38.76
SharqTelecom	0.35	50.00	0.28	24.80	0.25	24.80
TPS	0.30	90.00	0.29	59.00	0.29	59.00
ARS Inform	0.34	59.32	0.29	56.45	0.28	54.26
Albatros	0.47	63.56	0.44	60.48	0.43	58.14
UzNET	0.34	50.85	0.32	48.39	0.31	46.51
On average	0.37	67.14	0.34	50.55	0.33	49.64

In these circumstances, ISPs started the practice of attracting clients by providing those flexible packages of services and establishing various discounts and benefits for users. Discounts provided in night-time Internet access are becoming more popular: if average dial-up connection costs approximately stand at 200 soums/hour daytime, many providers are offering free nighttime connection starting 2004.

Cost of 64-128 kB/sec dedicated line Internet connection may amount up to 44,6 USD/month based on marketing plan and traffic. Number of users connected to Internet using dedicated line has gone up substantially. They include large corporate clients, banks or foreign missions. Nevertheless, the majority of clients still use dial-up access (approximately ratio of dial-up users and dedicated line users in 100:3). Despite the 40-45 percent growth in average monthly wage in comparison with 2003, that is up to 20USD per month, Internet access remains beyond the reach of majority of residents. It is primarily due to limited number of Internet access points and growing costs of local telephone calls, as dial-up persists as the most popular form of Internet access.

Hardware and software
Review of Internet access by availability of hardware and software for the public was conducted on the basis of following four indicators (see: Table 2 again):

Table 2.

Review of Internet access by availability hardware and software[30]

Indicators	Number	
	01.05.2003	01.07.2004
Number of personal computers for individual use(thousand)	135,0	250,2
Number of annually imported computers (thousand)	30,0	35,0
Ratio of equipment suppliers to the total number of companies involved in ICT sector (%)	10,0	10,0
Number of software applications developed in the country	110	91

According to the same data, 10 percent of 892 companies working in ICT sector are involved in supplying equipment. There is some growth in the import of computers-experts are estimating annual import of computers at 35,000-40,000 against 30,000 in 2003. Concurrently shift from importing computers towards import of components and local assembly is observed.
Currently around 200 companies and firms are operating in the software market. Production of local software products mainly consists of development of customized information systems of various levels of complexity by single orders. Majority of companies involved in procurement of software products are not sell their own but imported software adapted for local use.

As a summary; outcomes of the analysis of generalized indicators allow to conclude that information infrastructure of Uzbekistan in 2008 in comparison with previous years has advanced forward. Growth of ICT market is continuing, numbers of operators and Internet service providers are growing, including public Internet access points.

Thanks to development of competition among Internet providers, downward trend of their fees for services is evident. Charges of international calls also started coming down. Local firms and companies are developing various simple auxiliary software applications. However, despite trends of growth in the number of computers per 100 residents, level of computerization remains extremely low.

ICT EDUCATION

Human resources development and personnel training
Decree # UP-3431 of the President of the Republic of Uzbekistan "On State Nationwide Programme of School Education Development for 2004-2009" is instrumental in addressing the number of significant issues related to improvement of logistical support for general educational schools and creation of the unified system of continuous education.

It is notable that procurement of modern academic and laboratory equipment, computer equipment, textbooks, and study materials to schools as well as improvement of academic standards and curricula in place in educational system are defined as priorities in implementation of the Programme.

Conclusions of the Harvard University's document "Readiness to information world: Guidebook for developing countries" are quintessential for indicators of the second section. Literacy, including ICT literacy is a key factor determining the feasible level of using computers and network resources. Hence, these two documents have determined the necessity of and identified priorities in implementation of the review of the state of educational system in ICT sector in Uzbekistan.

All higher institutions are consolidated into unified corporate network. Such websites, as www.edu.uz, www.markaz.uz-retrieved on 1 June 2009 are launched. In accordance with Action Plan on formation of information resources in Internet national segment all websites of educational establishments are consolidated in www.edu.uz information and educational portal. Besides, tutorials and texts of lessons of educational establishments are placed in 'Ziyo' educational online base; resources of "ZiyoNET" information and educational network are created, www.literature.uz-retrieved on 1 June 2009, website devoted to life and work of famous Uzbek writers is launched, E-collector of articles, textbooks and abstracts as well as www.multilex.edu.uz retrieved on 1 June 2009-six-language online dictionary are created.

For computerization of educational process management, implementation of distance learning to educational process, provision of students and tutors with self-study opportunities under Tashkent State Pedagogical University named Nizami www.pedagog.uz- retrieved on 1 June 2009, information and

educational portal was created. In distance learning section of this portal there are tests on taught disciplines and virtual laboratories stands. In University the "TSPU-INTRANET" network that combines 250 computers of University is also created.

By the end of 2007 more than 500 electronic textbooks developed in higher institutions are registered, the most part of taught disciplines is provided with electronic texts of lessons accessible in information-resource centers of higher institutions.

Subdivision of "ZiyoNET" educational network resource center placed more than 6,000 information and educational resources in Library section of "ZiyoNET" portal. Information and computers are properly protected in all resource centers.
Special antivirus programs updated on regular basis are used for these purposes.

In accordance with Decree of the President of the Republic of Uzbekistan #381 dated 20 June 2006 under higher institutions information and resource centers are created, which positively effect capacity building process. Total number of computers in information-resource centers equals to more than 1,600 units.

Electronic versions of 307 textbooks funded by government have been distributed among all educational establishments of Center of secondary specialized, professional education.

Activities stipulated by approved Action Plan aimed at raising qualifications of teachers of secondary specialized schools on use of ICT in educational process are conducted. The factor that country possesses substantial number of educational establishments was acknowledged as important.

Overall, there were more than 9,700 general educational schools in the Republic of Uzbekistan. Furthermore, there are more than 61 higher educational establishments. This educational potential allows to promptly meeting the needs of Uzbekistan in essential specialists by systematically training of personnel in ICT sector.

However, accessibility of ICT in these two basic categories of educational establishments is significantly different. Therefore, corresponding indicators

for ICT development for schools and higher educational establishments are reviewed separately.

In accordance with investment program for 2007 269.5 bln. Uzbek soums were invested into information and communication technologies. For the period from 2003 to 2007 total amount of investments came up to 593.5 mln. US dollars, direct investments of this amount aggregated to 459.6 mln. US dollars, and under government guarantee-133.9 mln. US dollars.

This chapter contains answers to these and other questions.

- What are results of conducted works and tendencies of ICT development in Uzbekistan?
- How high is the level of awareness and use of these technologies by population and economic entities in the country?
- What is efficient factor of investments?

Pace of information and communication technologies development depends, first of all, on creation of appropriate structure and level of accessibility by users.
In particular, telecommunications network of Uzbekistan has direct international channels on 28 directions with output to 180 countries of the world. At that fiber optics and satellite systems are used. All cities and districts of the country are covered by digital telecommunications network. As of 1 January 2008 local network of the country had more than 2,000 ATS (Automatic Telephone System) with total capacity 2.08 mln. numbers.

Share of digital ones from this amount was 82.3%, and as of 1 September 2008–86.1%. Mobile connection services provided by five operators are rapidly developing during the last period. In September 2008 number of mobile connection subscribers in Uzbekistan exceeded 10 mln. and up to the end of year this index is expected to exceed 12 mln. Based on evaluations of foreign experts Uzbekistan for second year is in top-10 countries with the highest "mobile connection development index", which, at the same time, has ones of the cheapest tariffs. Almost all mobile companies started activities on implementation of 3G and WiMAX networks in Uzbekistan. Considerable part of review elucidates issues on Internet development and expansion.

So, capacity of international channels that provide connection to Internet became 362 Mbps as of 1 January 2008, and at beginning of 2002 it was only 8.5 Mbps. By the end of first half year of 2008 capacity has been increased up to 511 Mbps, which resulted in considerable increase of subscribers of leading Internet service providers of Uzbekistan. It is necessary to note, that number of subscribers increases not only in Tashkent, but also in regions. Also total number of broadband access subscribers increases, however, it is still not high.

Based on evaluative data the number of Internet users in Uzbekistan exceeded 2.2 mln., persons, whereas by beginning of 2002 it was about 130,000. At that, the highest coverage of population with Internet access is observed in Tashkent, Bukhara, Samarkand, Syrdarya and Kashkadarya regions.

It should be noted that Internet public access points are very popular; their number is constantly increasing and by beginning of 2008 came to 868.

Importance of ICT use in public administration is highlighted. Rosters of government information resources and systems are already formed in Uzbekistan. There are also rosters of basic online services of government agencies that aimed at creation and raising informational interaction between government and citizens, government and business, development of e-doc flow systems between different bodies of government administration, ministries and departments, enterprises, which raises efficiency, speed of exchange and processing the information and data.

For example, during last two years government agencies are actively equipped with computers, and in average, this index as for 1 January 2008 was 70.2 units per 100 employees. In all government agencies there is Internet connection. IT skills of state officials are also improving, including computer skills as well as skills of operating any other office equipment. At the same time, it is necessary to equip state bodies with more modern computers. It relates, in particular, to khokimiyats, where replacement process of out-of-date hardware by new one is relatively slow.

It is also necessary to more actively implement full-fledged systems of e-doc flow, since presently share of e-doc flow at intradepartmental level is still very low and equals to 21%. Regarding government online services it should be noted that, presently, every user can get certain information at

governmental portal, which was developed and placed in Internet in 2003 and, undoubtedly, assists in more intensification of interaction between government and society. Today 58 of 61 administrative bodies have their own websites. However, review shows that almost 37.7 websites of administrative bodies are not updated on weekly basis.

In the Republic of Uzbekistan a number of governmental resolutions aimed at implementation and development of electronic commerce have been adopted.

They are, in particular, #21 "About actions on development of electronic commerce" resolution dated 30 January 2007 and #120 "About actions on further enhancement of e-commerce payments" resolution dated 12 June 2007.

Also in accordance with resolution #102 of the Cabinet of Ministers of the Republic of Uzbekistan "About alterations and addenda to some resolutions of the Government of the Republic of Uzbekistan" dated 21 May 2008 it is stipulated that electronic bills received at e-commerce transactions are equal to bills of bank terminals.

Order of payments and taxation based on corporate plastic cards of legal entities is applied by payments for goods and services by legal entities through e-commerce systems. It serves to exactly determine circle of participants of e-commerce system retail payments, provide appropriate calculations of transactions and their control, and increase number of users of e-commerce and e-signature systems.

ICT use is mostly widespread in education field of Uzbekistan. So, the Ministry of Public Education of Uzbekistan is doing huge job on equipping secondary schools with computer hardware and software and withdrawal of out-of-date computers.

For these purposes loans and grants of international financial institutions (including Asian Development Bank) are applied. In the system of Center of secondary specialized, professional education the total number of computers in secondary specialized schools is about 30.7 thousands or 2.6 and 4.7 computers per 100 students in professional colleges and academic lyceums accordingly.

Number of students that actively use Internet increased by 83% and came to more than 52 thousands. All higher institutions are consolidated to unified corporate network. Information and resource centers under higher institutions are created; total number of computers in these centers is more than 1.6 thousands.

Intensive development of ICT requires appropriate quantity of high qualified specialists.

Corresponding system of preparation of specialists and their re-qualification is created.

For instance, along with 37 professional colleges specialized in information technologies, more than 400 colleges learn specialists in 44 specializations on 19 directions, such as, informatics and information technologies, radio engineering, radio communication, telecommunications.

ICT accessibility for educational establishments
Accessibility of ICT for schools
The Ministry of Public Education is equipping secondary schools with modern computers instead of out-of-date ones. Loans and grants of international financial institutions help in these activities.

Deterioration of indexes of schools equipping with computers in 2007 is a result of withdrawal of out-of-date facilities and opening the new secondary schools all over the country. Accessibility of ICT for schools was tracked by four main categories (see Table 3.)

Table 3.
Schools accessibility of ICT for schools [30]

	01.01.2006	01.01.2007	01.01.2008
Number of pupils per 1 computer (Pentium 3 and higher)	62.3	51.7	52.5
Number of pupils per 1 computer room	581.3	571.5	658.1
Number of schools per 1 computer room	1.5	1.5	1.9

The table demonstrates improving trend in schools' provision with computer equipment is typical for all indicators.

If there were 62.3 students per 1 computer installed at general educational schools in 2006, this figure fell to 51.7 in 2007, and reached 52.5 students in 2008.

Figure 5.
Student per computer[30]
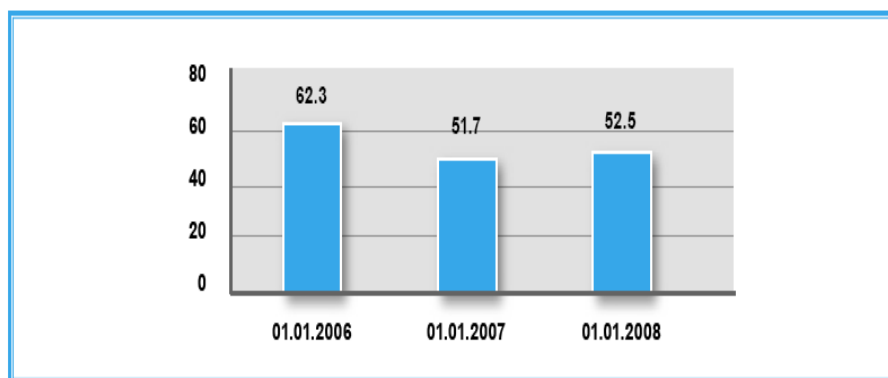
There is a general trend as a clear display of shifts in quantitative indicators of computer classrooms installed at general educational schools on the platform of IBM-PC compatible Pentium computers(analogous or higher).

These changes have led to another positive trend that started taking shape in 2002-2004: reduction in the number of students of general educational schools per 1 computer classroom. Equivalent to 5179 in 2002, ratio of students per 1 computer class fell by more than 16 percent, reaching 4344 students in the middle of 2004. However, despite positive nature of the noted trends, there is still much space for further improvement of the situation. Particularly noting that there are still 4619 computer classrooms in Uzbek schools on the platform of Pravets and Agat type computers manufactured in the beginning of 1990s, and unable to support modern information and multimedia technologies.

In order to ensure faster and qualitative changes of these circumstances, tenders were held to provide computer equipment to general educational schools of the country in the amount of 2.5 billion soums to be funded from local sources in 2004.

Concurrently computerization of general educational schools of Uzbekistan and Internet connection within the framework of USAID program is

continuing. Furthermore, Ministry of Public Education of Uzbekistan started talks with CNTIC IBC-a Chinese company to equip general educational schools of the country with 2,000 computer classrooms through low-interest loans. However, the following data demonstrates that available resources in the area are far from being exhausted.

For instance, currently only 3 schools are using satellite technologies nationwide. Only 148 (1.5%) of total 9,727 general educational schools had opportunity to access Internet from their own premises. Only 36 of these schools had Internet access through dedicated lines at the speed of 64kBit/sec and higher.

Extremely low share of school students and teachers within regular Internet users, 0.6% and 0.2% respectively, is the direct outcome of such a low rate of Internet connection of the schools.

A project named "Internet network for the schools of Uzbekistan" planned until the end of 2005, financed by U.S.

State Department and implemented by IREX aims at improving these circumstances envisioning connecting 60 schools in 6 cities (Andijan, Karshi, Namangan, Nukus, Termez and Ferghana). Furthermore, Ministry of Public Education of Uzbekistan is developing a project "Advancement of computerization and unified academic information medium in rural schools". Within this project 40 more rural schools will be connected to the Internet in the nearest future in Bukhara, Jizzakh and Samarkand regions.

Table 4.
Indexes of educational establishments with access to the Internet[30]

	01.01.2006	01.01.2007	01.01.2008
Share of schools connected to Internet (%)	1.7%	2.3%	2.7%
Share of secondary educational establishments connected to Internet %)	-	67.0%	77.5%
Share of higher educational establishments connected to Internet (%)	100.0%	100.0%	100.0%

Table 5.
Use of ICT and Internet in educational process[30]

	01.01.2006	01.01.2007	01.01.2008
Share of lecturers in higher institutions using ICT and Internet for non-ICT disciplines (%)	2.0%	6.0%	10.0%
Share of teaches in schools using ICT and Internet for non-ICT disciplines (%)	1.1%	1.2%	1.7%
Share of higher institutions possessing own websites (%)	100.0%	100.0%	100.0%
Share of schools possessing own websites (%)	0.8%		
Share of educational establishments using computer testing (%)	80.3%	85.2%	88.5%
Share of disciplines learned with use of multimedia applications and web resources (%)	4.0%	7.0%	12.0%

ICT accessibility for higher education establishments

As of July 2004, 61 higher educational establishments (HEE), 54 academic high schools and 791 vocational colleges were functioning in Uzbekistan. As a result of actions taken in 2007 by Ministry of higher and secondary specialized education, the number of computers in higher educational institutions came to more than 54 thousand units, which is more by 24% than in 2006. The number of students actively using Internet rose by 83% and came to more than 52 thousand students. Total amount in all higher educational institutions came to 23,420 units or, in average, 7.8 [20] computers per 100 students. ICT accessibility was measured by the following indicators

Table 6.
Number of HEE students per 1 computer classroom

	01.01.2006	01.01.2007	01.01.2008
Number of students of higher educational institutions per 1 computer (Pentium 3 and higher)	14.9	14.4	12.8
Number of students of higher educational institutions per 1 computer room	489.0	478.8	424.9
Number of higher educational institutions per 1 computer room	0.1	0.1	0.1
Average work time of computer rooms in higher educational institutions (hour/week)	48.0	48.0	48.0

The number of computer classrooms at HEEs leveled off at 425. Computers are integrated into local networks in each one of them. Indicator of the ratio of students per 1 computer class is corresponding. As of July 2004, HEEs in Uzbekistan had 15.8 thousand computers, 13 % more than in 2003. Trends of the indicators of integrating these computers into LANs.

All 61 HEEs nationwide had Internet connection in the mid-2004.59 of HEEs had dedicated line connections, including 4 optic-fiber channels. Currently only two HEEs still have dial-up access to Internet.

Total number of websites of academic institutions amounted to 139 as of July 2004 that exceeded the figure of 2003 by 40%. Following is the breakdown of websites by the groups of educational establishments:

- general educational schools -or 0.6% of total number of Uzbekistan's schools;
- academic high schools - or 3.7 % of their total number;
- HEE -7 or 77%.

In the meantime, the process of educational websites and portals in the ".uz" zone started in 2003. For instance, educational websites are created at 2 schools and 3 HEEs in Uzbekistan. Government of Uzbekistan lately has focused on inclusion of modern ICT into the curricula of schools and HEEs, including provision of modern study materials for educational establishments.

For instance, number of electronic textbooks and study materials at general educational schools reached 54 (10.7 % of total number), 31 (0.01%) at secondary special and vocational institutions, and 436 at HEEs (25.8%) nationwide.

The development of electronic textbook database on the platform of AILS-NUU library system integrating in excess of 2.5 thousand lecture texts was a positive step in this context.

Certain progress is evident in distance education systems currently being used mainly by Uzbek HEEs. ICT Centers of distance education were established at all HEEs for this purpose. Furthermore, 9 HEEs have modern videoconference equipment and 23 HEEs have sets of hardware and software application named Lector.

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As a result the number of users of distance education among HEE faculty is consistently increasing – their number made up 266 in academic year 2003-2004 against 176 in academic year 2002-2003.

Concurrently actions to introduce distance education in the schools have also started. Implementation group of the project "Development of educational system" with ADB's participation is working to train teachers through introducing the system of distance education at schools. 85 distance education centers are planned to be opened within the project.Schools are using computer-based testing of students in increasingly greater numbers. This indicator constituted 104 against 41 schools in 2002. However, in the background of computer-based testing of all students at academic high schools and vocational colleges, this indicator remains extremely small at schools.

Development of Human Resources Potential of ICT Sector
All educational establishments of the country, where courses related to ICT are delivered, have appropriate lecturers in their staff. In every ministry there are approved schedules of advanced trainings for ICT lecturers.

For the purposes of this review, development of human resources potential of ICT sector was tracked by share of ICT trainees and ratio of ICT instructors against total number of teachers of educational establishments.

Table 7.
Availability of ICT trainers

	01.01.2006	01.01.2007	01.01.2008
Share of ICT lecturers in total number of lecturers (%)	5.7%	5.7%	5.9%
Number of ICT lecturers in higher educational institutions per 1 student	0.5%	0.4%	0.5%
Number of ICT lecturers in schools per 1 pupil	0.1%	0.2%	0.2%
Share of lecturers in higher educational institutions passed trainings on ICT (%)	27.0%	31.4%	45.5%
Share of lecturers in schools passed trainings on ICT (%)	15.9%	17.3%	68.0%

ICT sector specificity stipulates needs for highly qualified specialists. In spite of all the attention paid to resolving this issue from government and private sector, this problem is especially actual in Uzbekistan. For example,

lack or non-availability of specialized learning of programmers as well as drain of qualified specialists to abroad are mentioned among impartial reasons of lack of qualified programmers.

In the field of communication and informatization capacity building and advanced trainings are carried out in accordance with adopted program. Thus, in higher education system Resolution of the President of the Republic of Uzbekistan #91 dated 2 June 2005 "On enhancement of specialist learning system in information technologies field" stipulates that Tashkent University of Information Technologies is a "head higher educational institution in learning specialists in ICT field". In accordance with this resolution since 2005-2006 regional branches of TUIT in Nukus, Karshi, Samarkand, Fergana and Urgench started their activities. This solution was taken in order to enhance capacity building system in ICT, and for further expansion and implementation of information and communication technologies as well as innovation technologies into educational process.

Special attention is paid to capacity building in software development field. Thus, Tashkent University of Information Technologies has "Programming technologies", "Computer systems and networks", "Applied informatics", "Electronic commerce", "Information security", "Engineering and computer graphics" and other chairs that successfully learn specialists on bachelor and master degrees. Branch of Lomonosov Moscow state university learns specialists on "Applied mathematics and Informatics" specialization and opened Department of Applied mathematics and Informatics. The objective of this course is preparation of specialists, who are competent in development of applications and databases as well as in IT projects management and security. The same capacity building is also carried out at faculty of mechanics and mathematics of National University of Uzbekistan at "Programming and network technologies", at "Information technologies and management" faculty of Tashkent state economical university.

However, it is necessary to point out that higher institutions of Uzbekistan give mainly fundamental knowledge, and often graduates are not ready to work in real sector with real applications immediately after graduation from higher institution. Many graduates do not possess sufficient level of knowledge, required for starting working career. Most part of companies faces the problem of additional education for young specialists. Programs of many higher institutions are often not actual and do not correspond market demands.

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Concurrently specialist training through the system of academic high schools and vocational colleges is under special focus. As of July 2004, 17 vocational colleges are offering specializations in computer science and ICT. In addition, students undergo training in special ICT at 200 vocational colleges. Center of Secondary Special and Vocational Education jointly with German Society for Technical Cooperation are implementing a project for training specialists in electronics, software programming and business in conformity with European educational standards. s of July 2004, total number of ICT instructors reached 10,300, including 6,600 at general educational schools, 2,200 at vocational colleges, 300 at academic high schools, and 1,200 at HEEs. The ratio of number of ICT instructors to the total number of teachers of educational establishment constituted 1.98% against 1.79% in 2003.

Application of ICT for Adult Training:
The system of learning specialists in software development area has also commercial educational centers, which have advantages comparing to state higher institutions and colleges in learning level and possibilities to orient to market demands. These educational centers provide different kind of trainings and certification including internationally acknowledged certification programs and provide higher level. There are also specialized courses that prepare specialists and involve them to projects in development of programming solutions. Center for training and support of young developers (CPPMP) provides the following courses: "Programming", "Internet technologies", "Databases", "Engineering and 3D-modelling", "Computer graphics", "Operational systems administration". The most talented students are selected for further internship and work in projects on software development. Besides educational activities, CPPMP is also working in development of qualitative local software products and organize applied researches.

Uzbek-Indian center that proposes free of charge trainings from 6 to 12 weeks in information technologies (Diploma in Information Technology, Advanced Diploma in Information Technology, Diploma in Business Computing, Diploma in Web Technologies) has been established under Tashkent University of Information Technologies. The program of courses created and taught by specialists from India in cooperation with Uzbekistan colleagues takes into account all up-to-date trends of IT field and requirements of modern software development industry.

At that, more attention is paid to apply programming with use of the latest technologies, programming languages, databases as well as software development projects management. Association of young programmers is also actively presented at market. For many young specialists it became a center, where they can upgrade their skills through participation in real projects.

Special attention is paid to preparation of specialists in development of open solutions. Thus, in the frameworks of capacity building and promotion of free open source software in Tashkent UNDP ICTP project supported organization of "Linux OS administration" training for trainers of CPPMP Also based on approved program on professional education UNDP ICTP project in 2007 supported creation and publication of manuals for teaching at courses on free open source software. Linux-community of Uzbekistan became another important platform for education and upgrading skills for developers of free open source software.

Under the UNDP ICTP project there is a Service of IT Volunteers, where IT trainings for students of Tashkent higher institutions are organized. Subsequently, IT volunteers assist to non-governmental organizations, government agencies and educational establishments in use of information technologies potential. Various educational centers oriented to professional education on Microsoft software products with certification are also actively presented at market.
The most important players at this segment are Center of computer education NetDec, educational center Softline, educational center UCD Micros and educational center "7 Levels".

As a summary; relatively high general standards of public literacy and education with substantial degree of professional training, large number of scientists, technicians, and engineers is certainly an achievement of Uzbekistan. Strong growth in the number of undergraduate and graduate students trained in ICT, improvement at computerization of educational establishments, particularly HEEs, academic high schools, and vocational colleges are noteworthy.

Programme for improving computer literacy of civil servants is in the pipeline, and computer literacy courses are being developed. Nevertheless, Internet access is limited at a number of educational establishments, and students and teachers rarely use Internet for educational purposes. There is

substantial space for improvement of indicators in the ratio of educational establishments and students per 1 computer classroom, particularly for general educational schools and vocational colleges. The share of electronic textbooks within total number of study materials remains small. There are still few websites and portals of educational establishments in the .uz zone.

PUBLIC USE OF ICT

According to the Concept of development of informatization of the Republic of Uzbekistan, creating essential prerequisites and grounds for building information society fully meets the requirements for sustainable country development. In this regard, number of people and organizations in the network, reflection of the local content, extent of ICT use in routine life and workplace. Altogether it will enable systemic change and innovation.

People and organizations in the Net

The share of population using information technologies, primarily Internet is a vital indicator to determine the extent of the informatization of the public. Certainly basic public access to broadcast media is essential for development of the society as a whole. Nevertheless increase in the share of people regularly using Internet is more important. Assessment of the presence of individuals and organizations in the global network was conducted based on the following indicators.

Table 8.
Assessment of the presence of individuals and
organizations in the global network[29]

Indicators	Number (в %)	
	01.05.2003	01.07.2004
Share of residents regularly using Internet	1,0	2,06
Public awareness of Internet	43,0	55,0
Public access to radio	99,0	99,0
Public access to television	98,5	98,5
Public access to fixed and mobile telephony	7,5	8,35
Share of organizations working in ICT sector	0,45	2,5

As it is clear from the table, along with improvement in public awareness of Internet from 43 to 55 percent, doubling of the number of regular Internet users was observed in 2004 in comparison with 2003. It clearly demonstrates that Internet started shifting from the category of "luxury" where it was just in 2001 started shifting towards being a "necessity".

ELECTRONIC GOVERNMENT

Currently, in the Republic of Uzbekistan considerable efforts are being made towards transition to a modern electronic exchange of information. The national infrastructure for application of electronic digital signatures (EDS) was created in 2006 and is now actively being developed, the activities on equipping the public authorities with computer technologies are being undertaken, the local area networks and corporate networks are being installed.

The registries of state information resources and systems, as well as of basic interactive services of state authorities have been created, which aim to establish and enhance the information interaction between the government and the population and businesses. The adoption of regulations ensuring the legal status of electronic documents in Uzbekistan, of course, contributes to the development of market for electronic document management systems (EDMS) and initiation of interdepartmental exchange of electronic documents allowing automating workflow between various government institutions.

The introduction of electronic document management systems enhances the level and quality of information interaction, increases the effectiveness of retrieval, handling and use of large volumes of information. Particular attention is being paid to training and retraining of civil servants on raising their awareness and developing their skills for effective use of modern information technologies.

At the same time, there are still relevant issues of introducing information technologies in local authorities, improving ICT knowledge of public servants, enhancing their access to modern information systems, including the Internet, developing and improving the quality of interactive (online) public services with the purpose of building an effective e-government in the country.

Access to ITCs by Government Institutions
The level of access to and use of ICTs in government institutions was evaluated on the basis of data collected by ministries, state committees, agencies, committees, centers, inspections and khokimiyats. The information received indicates a considerable progress in terms of availability of computers in government institutions, existence of local area networks (LANs) and corporate networks.

Over the past two years the considerable efforts have been made to equip the government institutions with computer equipment, thus bringing the average percentage of civil servants with computers at their workplaces to 70.2% (as of January 1, 2008).

The reduction in the growth rate of equipping level in 2007 (annual growth of 9%) compared with 2006 (annual growth of 16%) indicates only the tendency towards a gradual saturability of government institutions with computers. At the same time there is still important issue of equipping with computer equipment of khokimiyats (local authorities), where the replacement of old computers with new computers is taking place at a relatively slow pace.

Table 9:
Availability of computers in government institutions
and local authorities (per 100 civil servants)[30]

Government Institutions and Local Authorities	01.01.2006	01.01.2007	01.01.2008
Total for Uzbekistan	55.4	64.4	70.2
Ministries	62.5	67.8	73.1
State committees	60.1	65.7	69.6
Agencies	39.3	52.1	77.8
Committees	7.0	57.5	56.5
Centers	82.9	92.4	79.4
Inspections	40.2	45.4	68.7
Khokimiyats	56.9	65.3	61.5

The certain results have been also achieved in terms of developing of LANs in public administration. As of January 1, 2008, LANs have been established in 89.6% of government bodies, and the growth rate in 2007 (30%) has

significantly exceeded the growth rate in 2006 (5%). Primarily this is due to increased awareness and understanding of senior management of government bodies about the benefits of having LANs in their organizations for increasing work efficiency and reducing processing time, and as a consequence, the allocation of special funds for establishment and support of network infrastructure within these organizations.

It is expected, that very soon LANs will be created and become operational in all government institutions and local authorities.

Particular attention is being paid by government bodies towards establishment of corporate and agency-level computer networks to facilitate the integration of geographically remote divisions and departments of organizations into a single information space. As of January 1,2008 corporate computer networks have been established in 47.7% of government institutions of the country, and the growth rate in 2007 was significantly higher than in 2006.

There is also now an outstanding issue for government institutions of enhancing their management systems through introduction of paperless electronic document management systems. As of January 1, 2008, the average proportion of paperless document management within government institutions themselves has reached 50%, and the growth rate in 2007 was more than 32%.

Thus, we can say that government institutions are now probably at an early stage of building electronic government.

At the same time there is still urgent issue of implementation of full-scale electronic document management systems (EDMS) by government institutions for increasing accuracy and reducing processing time when fulfilling the assignments, as well as for automating the activities of government institutions when planning and implementing programs and projects.

Despite the high interests from government institutions towards implementation of EDMS in their respective organizations, the effective implementation of such systems in the near future will primarily depend on budgets allocated for ICTs by government institutions, because modern EDMS is not just "packaged software", but a complex of sophisticated and expensive services provided by qualified professionals.

Access to the Internet and Its Usage By Government Institutions
According to data from the Communication and Information Agency of Uzbekistan, at the end of 2007, all government institutions have been connected to the Internet. In the central offices of ministries and institutions in most cases the connection is done through a dedicated line.

Each institution has its own internal policies with respect to provision of its employees with the Internet access, which makes it impossible to determine the total number of computers in government institutions that are connected to the Internet. The decision on granting access to the Internet to any employee is taken on the basis of real needs of using the Internet by that employee for fulfilling his/her duties. All government institutions have special employees responsible for operating the websites of that institutions and regularly updating information available on that websites.

Information Resources and Systems of State Authorities
To meet the growing information needs of the population, as well as to facilitate the retrieval of information from multiple information resources, in accordance with the Resolutions of the Cabinet of Ministers of the Republic of Uzbekistan #27 dated February 20, 2006 "On approval of the list of state information resources and state authorities responsible for their formation, usage and maintenance", #34 dated February 16, 2007 and #87 dated May 7, 2008. "On amendments and additions to the list of state information resources and state authorities responsible for their formation, usage and maintenance", the Register of State Information Resources was established.

The state information resources are those information resources that are being formed from:

- information resources of government institutions;
- information resources of legal entities and individuals established via state funding;
- information resources of legal entities and individuals, containing state secrets and confidential information;
- documented information of legal entities and individuals provided in accordance with the established procedure.

The "Unified system of state accounting and registration of information resources and information systems of state authorities", posted at

www.reestr.uz website, allows for interactive introduction with existing information resources and placing new information resources directly within the website itself.

At present, the system holds 143 state information resources, of which 136 resources have been given the registration certificates (see Appendix 4). During the first half of 2008, 80 state information resources have been registered.

Interactive Public Services
Undoubtedly, the automation of interaction mechanisms and processes between the public authorities and the population and businesses through the Internet is an important part of the whole e-government development process in the country.

Thus, in order to improve the efficiency of activities of government institutions and local authorities, to ensure the operability of their interaction with legal entities and individuals through the use of information and communication technologies as well as to provide wider access to public services, the Cabinet of Ministers of the Republic of Uzbekistan through its Resolution #181 dated August 23, 2007 "On measures to further improve the interaction of government institutions and local authorities with legal entities and individuals through the use of information and communication technologies" approved "Regulation on interactive public services based on information and communication technologies" and "Register of basic interactive public services".

According to this Resolution, the interactive public services will be accessible through the Government portal, which, certainly, will contribute to further development of the Government portal itself, will enhance the interaction between the government and the population.

The complete list of basic interactive public services is provided in Appendix 5. It should be noted that some of these services (information about government institutions, tariffs for various types of services, rail and air transport timetables, etc.) have been already implemented and are actively being used by the population, while other interactive services are still under development.

The issue of using of interactive public services by the population was examined within a special survey of the Internet users in Uzbekistan. The survey results suggest that 9.1% of the surveyed Internet users at least once used the interactive services of public authorities.

Despite the high level of satisfaction of users with the quality of these services, the currently available interactive public services are more informational rather than transactional in their nature.

E-COMMERCE

ICT application in electronic commerce provides unique opportunity to overcome disadvantageous geographic location of the country, distance from vital trade routes and other unfavorable factors restraining the sustainable development of national business.

Despite lower interest for electronic commerce observed in the world economy this sector remain very lucrative as advancement of electronic commerce may substantially increase turnover of goods and fill the information vacuum regarding any goods and services.Electronic commerce primarily enables to reduce turnover costs by 20-30 percent and even more in some cases.

Furthermore, it facilitates and enhances transparency of transactions in the markets of goods and services, encourages competitive environment and equal access to resources, facilitates access of Uzbek manufacturers to world markets and setting new business standards.

The following components are conventionally used to assess the state of electronic commerce:

- Opportunities for electronic commerce in the country;
- Business to consumer electronic commerce
- Business to business electronic commerce;

Over the recent years, in the Republic of Uzbekistan a number of government regulations have been adopted aimed at introduction and development of electronic commerce in the country.

Among them the Resolutions of the Cabinet of Ministers of the Republic of Uzbekistan #21 dated January 30, 2007 "On measures to promote e-commerce" and #120 dated June 12, 2007 "On measures for further enhancement of payment procedures when implementing e-commerce".

Also in accordance with the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan #102 dated May 21, 2008.

"On amendments and additions to some resolutions of the Government of the Republic of Uzbekistan" the receipts ("electronic receipts"), received in the result of e-commerce transactions, are equaled to receipts of banking terminals.

The procedure of payments and taxation on corporate plastic cards of legal entities is used in the process of payment for goods and services by legal entities through e-commerce systems.

This, in turn, provides a clear identification of e-commerce actors, i.e. participants of retail payment system of e-commerce, ensures record-keeping and control over ongoing transactions, increases the number of e-commerce and electronic digital signature users.

Another important piece of legislation in this area is "Procedure of preparation of contracts in electronic form and other types of documents used in e-commerce".

This procedure was developed for implementing the Laws of the Republic of Uzbekistan "On electronic commerce", "On electronic payments", "On electronic document flow" and in accordance with paragraph 1 of the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan #21 dated January 30, 2007 "On measures to promote e-commerce".

This document is aimed at ensuring the legal procedures for registration and execution of activities in e-commerce area, defining the requirements for contracts in electronic form, as well as setting the legal conditions for the authenticity of electronic documents using electronic digital signatures. As of July 1, 2004, the number of ICT specialists constituted 0.16% of total workforce as of July 1, 2004.

Volume of investments into ICT sector at the moment of preparation of the review amounted to 111.6 billion soums, equivalent to 1.34% of GDP.

Electronic commerce in the Business to Consumer system
Electronic commerce in the B2C segment of the market was assessed by the following indicators for the purposes of this review (see Table 12. again).

Table 10.
Electronic commerce in the B2C segment of the market

Indicators	Number	
	01.05.2003	01.07.2004
Share of organizations with their own websites (%)	1,0	2,1
Share of websites of commercial organizations providing online services (%)	14,0	20,0
Share of electronic commerce in the total value of national trade (%)	1,0	1,0
Number of terminals for plastic card payments	902	1819

Unlike the banking sector, the non-banking sector of instant payments has witnessed the rapid development starting from 2006. This sector is represented by several companies working under the following trademarks: Paynet, E-pay, Fast-pay, Unipay, Cyberplat, etc. These companies work with a broad network of agents, thus making the payment points very accessible to the population. They accept the payments from the population for services of mobile operators, Internet providers, and international telephone call operators. Within Tashkent city the payments for fixed telephony, electricity and natural gas services are also available. The convenience of these services is ensured due to a large number of agents and possibility to pay any amounts within the established tariffs. For their services the agents normally receive 2% from the amount of payment.

The next step towards development of non-banking sector of payments was done by mobile payment systems–Mobliss trademark, PayCarta Internet payment system, which announced the launch of its commercial service in March 2008, and eKarmon system, which held its presentation within BestSoft- 2008 exhibition.

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These systems allow their clients to pay for mobile communication, Internet access and international telephony services, purchase goods in online stores and restaurants that provide the delivery of meals. One of the features of eKarmon system, according to information from eKarmon Group Company, is that in order to ensure security in transactions, the user will be given the electronic digital signature, which he/she will use to make payments. To that end, the company, which developed the system, has registered the EDS registration center. The company also plans to offer complete solutions for creating online stores with possibility of receiving payments using eKarmon system.

In 2005, a guarantor of WebMoney Transfer online-payment system has been registered in Uzbekistan, and in July 2006 WMY title tokens (WM currency of Uzbekistan) were introduced. The amount of primary emission was equal to 100 million WMY – the equivalent of 100 million soums. Since that time the population of Uzbekistan got an opportunity to refill their electronic "wallets" and use them to purchase goods from online stores. As of the beginning of 2008, WMY can be used to pay for mobile communication, Internet access and international telephony services, purchase of digital products, domain names, cosmetics.

In addition, there are online exchange points used for exchanging electronic currencies of WebMoney Transfer system, denominated in U.S .dollars, Euros, Russian and Belarusian rubles, Ukrainian hryvnas, and to currencies of other types of electronic payment systems, such as, Yandex.Money, RuPay, E-gold, etc. By exchanging WMY money to other currencies, the clients of the system can use them for purchasing consumer electronics, computers, communication devices and other products.

Out of these websites, 4–are under development, 4–offer a possibility of paying using plastic cards of international payment systems, 12–accept payments in WM Transfer system, 4–provide a possibility of paying using plastic cards in UZS on delivery, 12–accept payments with cash on delivery, and 7–sell goods through bank transfer of funds after signing a paper contract.

With further development of on-line banking and non-banking electronic payment systems, the rapid growth in online sales sector is expected, when all companies involved in wholesale and retail trade will be able to easily sell their products via the Internet.

As a summary essential technological prerequisite are in place in Uzbekistan for development of electronic commerce–a unified banking corporate network has been created and can be used to accelerate advancement of electronic commerce in all sectors of the economy.

In the meantime, certain aspects of electronic trade infrastructure are missing: country does not have a single body of electronic certification, not a single system of distributing keys; legal foundation for creation of electronic payments system with the use of Internet is missing.

The market of electronic commerce is limited due to the lack of trust in electronic commerce both among buyers and sellers. For these reasons, only a few Internet shops and trading platforms are functioning in UzNet. Prevailing majority of the companies are use the web only for publishing price-lists.

Thus, by and large electronic commerce remains at the early stage of its development. Therefore, significant boost in government support and encouragement is essential for further development of domestic electronic commerce. Development and implementation of a special program for long-term advancement of electronic commerce is expedient to this end.

PRIORITIES FOR ICT DEVELOPMENT

Decree # UP-3080 "On further development of computerization and introduction of information and communication technologies" of the President of Uzbekistan has set the priorities for ICT development. "Program for development of computerization and introduction of information and communication technologies in 2002-2010" was developed to address the task set in the Decree and new edition of the Concept of development of information of the Republic of Uzbekistan, reflecting the ICT development strategy and effectiveness of its implementation.

Hence, ICT is designated as a priority in national development, however, so far no action has been agreed for implementation of the Concept of Informatization and its financing sources are not yet determined. Government in the face of Coordination Council for Development of Computerization and Information-Communication Technologies is aware of the important role of private and public sectors in ICT development. Representatives of private and public sectors are routinely invited to the

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meetings of the Coordination Council for joint discussion, development of joint programs and ICT development planning. However, many agencies and local authorities have not yet determined their priorities in private and public sectors in ICT development.

The process of streamlining legislative foundation aimed at creating conducive legal environment for ICT development in underway in Uzbekistan. Certain progress is evident in creating favorable climate and liberalization for ICT development, distancing from administrative methods of managing this sector. Liberalization plan for telecommunications services have been developed to boost the effectiveness of ICT sector, and medium to encourage competitive environment are being created. Trade barriers for import of ICT equipment have been reduced. However, continuing monopoly of Uzbektelecom for telecommunications services has not contributed to sharp reduction in tariffs. Awareness of decision makers of the advantages of information technologies and Internet is not adequate.

CONCLUSION

It is difficult nowadays to imagine daily life without information and communication technologies that for short time period just turned up our ideas about opportunities to communicate through various communication systems and ways of data accessing. Presently, ICT are widely used in all fields of society life: public administration, economics, medicine, education, science and culture, in household use etc. It is possible to say that without development of information and communication technologies the successful social and economic development of any country is impossible.

Realizing advantages brought by development and expansion of ICT Uzbekistan pays special attention to these issues, particularly, during last years. First of all, for development of information and communication technologies the required legal base and corresponding administration, coordination and execution bodies have been created in accordance with a number of legislative and regulatory acts. Also several national programs oriented to development of ICT and Internet in Uzbekistan, such as "The program of development of computerization and information and communication technologies for the period 2002-2010", "National program of reconstruction and development of telecommunications network of the Republic of Uzbekistan for the period till 2010" and others have been developed and adopted.

Association of IT companies and organizations of Uzbekistan also actively participates in ICT development. It consolidates enterprises and organizations of ICT sector on the basis of voluntariness and equality and assists in strengthening partnership and more active participation of private sector in formation and realization of policy and legislation, scientific and practical activities, provision of legal and social protection of association members as well as in development of international cooperation in IT field.

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The Last Words

TOWARDS GLOBAL E-LEARNING

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This book contains massive and impressive evidence of the progress of global e-learning. The emerging of life-long learning and new professional and vocational competencies as well as the globalisation of society and the rise of a knowledge-based economy have raised expectations upon higher education institutions and related services to the society. Governments and corporations look to universities and colleges for innovative uses of new information technologies in teaching and administration, while also expecting that educational institutions will make their students sufficiently technology-literate to participate in a global economy. This vision of the new global learning emphasizes more than before the role of market forces in shaping the institution, the need to respond to users´ needs, and the need to deliver knowledge continuously through distance learning and lifelong learning. However, the vast majority of universities are as well as the public and private organizations they work with are unprepared to reorganize themselves to address these new demands.

A true revolution in e-learning requires high-speed access to the World Wide Web, and the flexibility to offer a variety of media. The new services are profoundly changing the professional research and educational work when it is possible to retrieve and save articles and other materials, search all kinds of information from images and animation to texts, and receive e-mail alerts and have access to sources not conceivable before

Globalisation is consolidated by the extraordinary invasion of higher education by new technologies, especially the Internet. The development of communication and information technologies makes it possible for distance teaching institutions to strengthen their position in the educational landscape. They also pave the way for lifelong education for all and at the same time are spreading the traditional universities, more and more of which use distance teaching methods in their activities, thereby making the distinction

between the two types of institutions virtually meaningless. There are an increasing number of university networks of this kind all over the world, and the use of computers in the learning process, access to the Internet by students as a vehicle for self-directed learning, educational broadcasting and video-conferencing are all being stepped by.

The basic question for universities has always been what kind of people we want to have as our leaders – capable of taking responsibility of the future, environment and development-.

Mr. Koichiro Matsuura, Director-General of UNESCO, said in 2002:

> •*"It is necessary to build up large movement to humanize globalization, based on solidarity, on the spirit of caring for and sharing with others"*
>
> •*Open Educational Resources (OER) initiative as a cooperation mechanism for the open, non-commercial use of educational resources*

Open educational resources are educational materials and resources offered freely and openly for anyone to use and under some licenses to re-mix, improve and redistribute. Open educational resources include:

- *Learning content:* full courses, course materials, content modules, learning objects, collections, and journals.
- *Tools:* Software to support the creation, delivery, use and improvement of open learning content including searching and organization of content, content and learning management systems, content development tools, and on-line learning communities.
- *Implementation resources:* Intellectual property licenses to promote open publishing of materials, design-principles, and localization of content.

According to the UNESCO International Institute for Educational Planning higher education institutions worldwide face significant challenges related to providing increased access, while containing or reducing costs. Meeting increasing and increasingly varied demand for quality higher education is an important consideration in policy debate and institutional development in many countries. New developments in higher education -from virtual

universities and cross-border education to e-learning, blended learning and open educational resources- all speak to the efforts on the part of the traditional higher education community, as well as new providers, to address the challenges they face in increasing provision. (Unesco International Institute for Educational Planning 2005

In 2009, the new Director-General Ms Irina Bokova has stressed the importance of information and communication technologies in the spirit of new humanism (UNESCO/IITE 2009).

Modern European university traditions during the last 500 years are facing major challenges in the 21st century. During the Enlightment and the spirit of Kant, the emphasis was on the logic of human rationality. The Humbold tradition during the 19th century promoted culture and civilization, a holistic idea of human beings as the ultimate goal of higher education. This vision was replaced in the late 20th century by the idea of centres of excellence which are highly specialized but rather narrow in their approach to knowledge. The idea of civilization degenerated into a techno-bureaucracy. This trend has been further intensified by the market model of a university where such fields of human inquiry are favored which make money. Also corporate universities are being promoted especially when the new models of e-learning and mobile learning can be applied.There is an increasing need for a new renaissance education where technology, art, science and humanities as well as religion are integrated. This challenge emerges also outside Europe in where cultural identities are part of the objectives of higher education. This would also reflect the UNESCO current credo of "new humanism."

Telematics, knowledge content, and multimedia-based tools are widely considered central ingredients for evolving new ways to provide learning and training. European projects seek to build, express, and voice consensus views on relevant issues that may be presented for its consideration. In particular, it deals with the following issues:

- Optimal strategies for multicultural, multilingual learning solutions,
- New instructional and training approaches and new learning environments,
- Affordable solutions and platforms based on open standards and best practices,
- Publicly accessible and interoperable knowledge repositories.

The consensus building actions will seek to bridge the gap between research and actual use of learning technologies, content, and services.

There is now a need for common European virtual education and common European degree system. The content of a European virtual university gateway service would be a portal to net-based or net-supported courses and programmes, information search, collaboration and exchange, common denominators, ownership and endorsement label. The quality issues include transparency, benchmarking, meta-data structure, user and peer reviews, sharing of models and best practice, sharing system and tool description, and user experiences (Aslaksen 2001).

Virtual education in Europe has mainly taking place within national level so far and there is not much transnational collaboration yet. National consortia with centre of expertise has been formed in many countries (France, the Netherlands, Finland, etc) while some single e-universities and project-based national initiatives also exist. Public-private partnerships are also developing and there are new providers of content from corporate and media linked sources. The issues of quality assurance and accreditation as well as international strategic alliances are widely discussed.

The introduction of eLearning requires also new competencies. A competency is an area of knowledge or skill that is critical for producing key outputs. The competencies can be grouped into generic categories such as general, management, distribution method, and presentation method which help illustrate the relationship among certain competencies.

Transnational education is not necessarily international in the sense that this term has been used before in the context of international education. Courses and learning materials and environment are simply offered beyond national borders. However, a university is more than a library of courses. It is still the college and the professional faculty who can give the quality guarantee to credits and credentials, degrees and diplomas. Governments will have their responsibility in quality assurance especially in courses delivered from non-accredited institutions from abroad.

The quality assurance for virtual education can follow external and internal models. The external models include multi-lateral agreements, accreditation, licensing, kite-marks, and consortia arrangements. The internal models include codes of practice and quality, and management systems. The

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assessment of on-line universities is often accompanied by three principles. First, the institution must demonstrate how it will achieve its goals, particularly student learning goals, and maintain high standard of quality in doing so. Goals must be stated which are specific and assessable. Second, the assessment should provide assurance that standards of quality are successfully maintained at an appropriate level regardless of the medium of the course or the methods of instruction adopted. This is a concern that students have a reasonable assurance that the course offerings they believe they are taking, based on public descriptions, are accurate regardless of where or under what format the course is offered. Third, the responsibility for the conduct of assessment should be appropriately delegated and shared.

The philosophy of eLearning focuses on the individual learner although it recognizes that most learning is social. In the past training has organized itself much for the convenience and needs of instructors, institutions, and bureaucracies. Now eLearning is the convergence learning and networks, the Internet. New university systems are being developed to new global needs (Utsumi-Varis-Knight-Method-Pelton 2001). The experience and critical function of the traditional universities is central in the efforts to create new eLearning environments.

The European eLearning summit emphasized the importance of assuring quality and certification in eLearning. Co-operation in the production and selection of best practices is needed between the private sector and teachers, instructors, ministries and pedagogical experts. Forums for peer reviews could create a useful, informal way of evaluating eContent. Existing eLearning portals could also be enlisted to function as quality filters (European eLearning Summit, May 2001, Workshop Papers).

The Role of The Nation State And Transnational Education

There is an urgent need to focus on the digital content services of different disciplines and fields of applications in order to avoid biased e-library services. Learning technology standards are critical because they will help us to answer a number of open issues. Whether it is the creation of content libraries, or learning management systems, accredited standards will reduce the risk of making large investments in learning technologies because systems will be able to work together like never before. Accredited standards assure that the investment in time and intellectual capital can move from one system to the next.

Our experience in Finland with the national electronic library FinELib project as well as the European projects show that there are great differences in the use of digital programmes and services in different countries, different type of universities and polytechnics, and different disciplines. All European e-learning materials http://www.elearningeuropa.info are available in the e-learning portal at

There appears to be unanimous agreement on the need to change education and that e-learning happens to be in the right place and in the right time. There seems to be a coincidence between e-learning as a tool and the necessity to modify the traditional model of education. In my view the use of digital libraries is directly connected to the new e-learning competences, especially to information literacy. In my view the use of digital libraries is directly connected to the new e-learning competences, especially to information literacy.

Higher education has to aim at quality and that internal and external evaluation methods should be more generally applied, thereby enabling it to be accountable to society. Higher education institutions are expected to train citizens capable of thinking clearly and critically, analyzing problems, making choices and shouldering their responsibilities. The ethical role of universities is becoming more and more important.

Higher education cannot, however, be visualized any longer in purely national or regional terms. Future graduates have to be in a position to take up the complex challenges of globalisation and rise to the opportunities of the international labour market. The equitable transfer of knowledge and the mobility of students, teachers and researchers, and with also the mobility of learning environments with the e-learning applications are crucial to the future of world peace.

National Strategies for Telecommunication for Higher Learning
In the information society, knowledge forms the foundation for education and culture and constitutes the single most important production factor.

The national vision is a society, which develops and utilizes the opportunities inherent in the information society to improve the quality of life, knowledge, international competitiveness and interaction in an exemplary, versatile and sustainable way.

To open up better opportunities for self-enhancement, interaction and influence the decisive factors for the competitiveness of a business enterprise are rapid responses, flexibility and networking. The public sector develops the overall conditions for the information society and promotes the construction of technology and the infrastructure. To be able to make the best use of the opportunity thus offered for everyone who needs new skills or intercommunication with one to other.

Uncontrolled information society development may lead to the exclusion of some population groups and regions. The increasing use of ICT in office work is conducive to efficiency, and at the same time it reduces labour needs. Electronic transactions and trade may impair services for those with inadequate skills and knowledge for electronic self-service. Access to sources of information in the midst of the information flood may increase inequality between people if the cost of reliable and well organized information services is too high. The constantly expanding data systems include more and more information about individuals, which, if abused, may compromise people's privacy. Dependence on ICT may increase risks in nearly all activities, which highlights the need to prepare for exceptional circumstances.

Information society development is influenced by global trends, such as progress in the global economy and electronic trade, the rapid progress and integration of ICT, the growing presence of the media and the growth of populations. Growing social inequality and urbanization, environmental problems, increasing mobility and the strengthening role of regions in Europe has also promoted the rapid development of information society.

The role of the public sector is to create conditions for building an Information society, which meets the needs of both individuals and business enterprises by means of legislation, research and education. The public sector also promotes the development of serviceable technology and infrastructure. By means of strategic management, it will ensure access to information and promote the development of knowledge, an efficient innovation system. Also conditions for business activities, balanced regional development, the implementation of human rights, and equality, credibility and security in society will be developed. The public sector must constantly re-evaluate its own role and mission.

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Democratic and open access will be offered to every one through reduced costs. It can be for the diffusion or use of the interactive services offered on the various communication networks. Each citizen will be granted easy access to the kind of knowledge, which until now has been difficult to reach. Today he has the facility to access the interactive tapping of cultural goods as those from libraries, museums or galleries' art collections. The development of permanent education will hence be made easier while specific cultural identities will be preserved.

It is the administration's task to strengthen democracy and improve citizens' access to information and opportunities for social influence by developing legislation and procedures and making use of the opportunities offered by technology. Legislation and legal control also promote the implementation of the individual's data protection and freedom of speech and improve the individual's status as a consumer.

Decentralized decision-making highlights the need for management by strategies. ICT creates new opportunities for producing and distributing public services, but at the same time it entails the renewal of processes in co-operation with the private and voluntary sectors.

- Information society development and changes in the operational environment must be constantly monitored to provide support for strategic management. The action models and cost-effective utilization of technology must be developed and promoted in the administration to ensure compatibility and sufficient steering of information management. Efficient procedures and funding practices, which provide incentive for good performance must be developed and instituted for cross-sectoral R&D projects in particular. All this entails substantial annual funding.

- With a view to transparent decision-making and the empowerment of citizens, users must be able to access the information produced by the public sector in an electronic form.
- The public sector must take responsibility for data security in society and, together with enterprises, ensure that all critical systems function under all circumstances. The administration must develop norms and regulations governing exceptional circumstances and see to the dissemination of information.

Shared responsibility and competitiveness must be developed in tandem, and due consideration must be given to ecological factors. The individual requires new skills as a citizen, consumer and employee in order to manage, critically analyze and make full use of the information flow.

Knowledge management requires good feedback channels, indicators and incentives, as well as constant alertness to changing needs. The prerequisites of knowledge management can be improved with the introduction of renewed procedures. Educational institutions, business enterprises and other work communities can engage in closer cooperation with a view to knowledge transfer and the utilization of information reserves.

- Strategic management of knowledge and processes which support it must be developed to keep know-how at a high standard on a wide front and a sufficient part of it at the top level. The national priorities in education and research and their financing must be regularly reconsidered by the combined cooperation of both the public and private sectors to ensure a flexible response to changes. Methods for anticipating changes in working life and in industrial structures must be developed to help business enterprises and educational institutions to respond better to the challenges arising from these changes. Enterprises in growth fields could make the know-how qualifications in their key professions available to job seekers and educational institutions on the information network.
- Measures must be taken to develop such methods for measuring human capital which encourage organizations to appreciate and increase their own human capital and which also serve to develop funding for growth of enterprises. The accounting of organizations must indicate the investment made in know-how. Taxation practices must give incentive for the development of know-how.
- Wide-scale cooperation must be carried on, and further expanded, to offer the necessary basic skills in the use of information society tools and electronic services to all citizens, and especially to those who have not had instruction in the new skills during their education or in their line of work. All levels of education must increase the teaching of skills needed to acquire, critically evaluate, transmit and present information and to interact in the modern, international communications environment. Teachers' initial and continuing education must be essentially improved to enable teachers to utilize

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the possibilities of the information society and to pass on relevant knowledge to their pupils.

The fundamental features of the information society are global interconnection and interoperability between multiple professional educational or entertainment services. A unique opportunity is thus offered for the distribution of a very large range of products and creations, which will reflect the most diverse cultural and linguistic identities.

The stake of information society is worldwide because the interconnection of national communication networks gives birth to a global infrastructure thus linking economical, political and social operators. The information society will have considerable social and economic impacts which will affect all citizens in various aspects of their daily lives.

Quality, Validity and Intellectual Rights in Elearning
A survey carried out for the Institute of International Education in New York pointed out that higher education has profoundly changed in the past two decades, and those involved in the academic enterprise have yet to grapple with the implications of these changes. Academic institutions worldwide stem from common historical roots and face common contemporary challenges. While it may not yet be possible to think of higher education as a global system, there is considerable convergence among the world's universities and higher education systems. The medieval European historical origin of most of the world's universities provides a common antecedent. Academic institutions have frequently been international in orientation with common curricular elements and also with the language (in the medieval period Latin, and now more or less English, especially in the Internet). Technology has made possible the revolution in distance education that has important implications for the accreditation of educational institutions and assurance of quality in such circumstances (Altbach-Davis 1999, p.3-10).

In a historical perspective it has been very difficult to plan, execute and provide transnational educational courses. The League of Nations started the international textbook revision soon after the First World War. Since then, many efforts have been made to overcome suspicion and mistrust, bias and prejudice in all fields, political and religious in particular, but also social and psychological. Many bilateral agreements between governmental and non.-governmental organizations of the teaching profession have been concluded for the reciprocal study and revision of educational materials in order to

ensure that they are accurate, balanced, up-to-date and unprejudiced. In the past, however, only small and medium-sized states were interested to sign the declarations and policy documents prepared by the League of Nations and their International Institute of Intellectual Cooperation (Mertineit 1977, p.102)

After 1945 UNESCO in particular has continued the work initiated in the 1930´s with little success then. A major achievement of UNESCO was the World Conference on Higher Education in 1998, and the "World Declaration on Higher Education for the Twenty-first Century: Vision and action", adopted there (ED-98/CONF.202/3, UNESCO, Paris 1998). According to the Declaration there is an unprecedented demand for and a great diversification in higher education, as well as an increased awareness of its vital importance for sociocultural and economic development. Higher education includes ´all types of studies, training or training for research at the post-secondary level, provided by universities or other educational establishments that are approved as institutions of higher education by the competent State authorities.

The UNESCO 1998 Declaration gives three characteristics for qualitative evaluation:

- Quality of higher education is a multidimensional concept, which should embrace all its functions, and activities: teaching and academic programmes, research and scholarship, staffing, students, buildings, facilities, equipment, services to the community and the academic environment. Internal self-evaluation and external review, conducted openly by independent specialists, if possible with international expertise, are vital for enhancing quality. Independent national bodies should be established and comparative standards of quality, recognized at international level, should be defined. Due attention should be paid to specific institutional, national and regional contexts in order to take into account diversity and to avoid uniformity. Stakeholders should be an integral part of the institutional evaluation process.
- Quality also requires that higher education should be characterized by its international dimension: exchange of knowledge, interactive networking, mobility of teachers and students, and international research projects, while taking into account the national cultural values and circumstances.

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- To attain and sustain national, regional or international quality, certain components are particularly relevant, notably careful selection of staff and continuous staff development, in particular through the promotion of appropriate programmes for academic staff development, including teaching/learning methodology and mobility between countries, between higher education institutions, and between higher education institutions and the world of work, as well as student mobility within and between countries. The new information technologies are an important tool in this process, owing to their impact on the acquisition of knowledge and know-how.

The UNESCO Declaration also addresses the potential and the challenge of technology. It notes that the rapid breakthroughs in new information and communication technologies will further change the way knowledge is developed, acquired and delivered. Among the recommendations to ensure quality and maintain high standards for education practices and outcomes in a spirit of openness, equity and international co-operation it realizes that institutions of higher education are using information and communication technologies in order to modernize their work, and that it is not information and communication technologies that are transforming institutions of higher education from real to virtual institutions.

Marco Antonio Dias, the former Director of UNESCO, has noted that globalisation is consolidated by the extraordinary invasion of higher education by new technologies, especially the Internet. The development of communication and information technologies makes it possible for distance teaching institutions to strengthen their position in the educational landscape. They also pave the way for lifelong education for all and at the same time are spreading the traditional universities, more and more of which use distance teaching methods in their activities, thereby making the distinction between the two types of institutions virtually meaningless.

There are an increasing number of universities networks of this kind all over the world, and the use of computers in the learning process, access to the Internet by students as a vehicle for self-directed learning, educational broadcasting and video-conferencing are all being stepped by (Dias 1998, p.370).

Dias also reminds that higher education has to aim at quality and that internal and external evaluation methods should be more generally applied,

thereby enabling it to be accountable to society. Higher education institutions are expected to train citizens capable of thinking clearly and critically, analyzing problems, making choices and shouldering their responsibilities. The ethical role of universities is becoming more and more important.

Challenges of the Multicultural World in the 2010s

Higher education cannot, however, be visualized any longer in purely national or regional terms. Dias writes that future graduates have to be in a position to take up the complex challenges of globalization and rise to the opportunities of the international labour market. The equitable transfer of knowledge and the mobility of students, teachers and researchers, and with also the mobility of learning environments with the eLearning applications are crucial to the future of peace in the world.

By eLearning, also e-Learning, we understand best practices for learning in the new economy, implying but not requiring benefits of networking and computers such as anywhere/anytime delivery, learning objects, and personalization. It often includes instructor led training.

History shows that revolutionary changes do not take off without widespread adoption of common standards. For electricity, this was the standardization of voltage and plugs; for railways, the standard gauge of the tracks; and for the Internet, the common standards of TCP/IP, HTTP, and HTML. Common standards for metadata, learning objects, and learning architecture are mandatory for similar success of the knowledge economy. The work to create such standards for learning objects and related standards has been going on around the world for the past few years (http://www.learnativity.com/standards/htm retrieved on, 10 July 2001).

Learning technology standards are critical because they will help us to answer the following issue clusters:

- How will we mix and match content from multiple sources?
- How do we develop interchangeable content that can be reused, assembled, and disassembled quickly and easily?
- How do we ensure that we are not trapped by a vendor´s proprietary learning technology?
- How do we ensure that our learning technology investments are wise and risk adverse?

Whether it is the creation of content libraries, or learning management systems, accredited standards will reduce the risk of making large investments in learning technologies because systems will be able to work together like never before. Accredited standards assure that the investment in time and intellectual capital can move from one system to the next.

The GUS at the University of Tampere, Finland is the headquarters Chair of the GUS/UNESCO/UNITWIN Networking Program. The Global University System (GUS) is adopting philosophies and principles that emphasize trans-cultural and moral values rather than ideologies. The priority is in academic freedom and quality in education (Utsumi, et al., 2001). The Global University System (GUS) is a network of networks formed in particular by higher education institutions, but also by other organizations sharing the same objectives of developing a co-operation based on solidarity and partnership aiming to improving the global learning and wellness environment for people in the global knowledge society, where the global responsibility is shared by all. The project of helping establish CampusNet and Community Development Networks in Amazon region with the Japanese government's funds is the forerunner of this approach of GUS.

When broadband Internet will be available and interconnect member universities of our GUS/UNESCO/UNITWIN Networking Program, we can expect followings:

- Coalition member universities will be able to build the network of facilitators for support of e-learners,
- Learners may take one course from a university of different country, in Japan, Canada, Brazil, Finland, etc., to get his/her degree from the GUS, thus freeing them from being confined with one philosophy of a university,
- The broadband Internet will enable Web-based teaching with more interaction among/between learners and instructors compared with less interaction in replicating class-room teaching via satellite, - thus stimulating global dialogues among them to attain world peace,
- Learners and faculties at the member universities can promote exchange of ideas, information, knowledge and joint research and development of Web-based teaching materials, community development, and many others locally, regionally and even in global scale,

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- Researchers in even developing countries can perform joint collaborative Hi-Tech research and development on various subjects, e.g., Globally Collaborative Environmental Peace Gaming, micro-biology, meteorology, chemical molecular study, DNA analysis, 3D human anatomy, design of space shuttle (a NASA project for training high school students around the world), etc.

In a sense, our GUS/UNESCO/UNITWIN Networking Chair program is to construct global scale knowledge forum with advanced ICT, e.g., with the use of massive parallel processors of globally distributed and yet interconnected mini-supercomputers around the world through Global Broadband Internet (GBI) of the global neural computer network

Our efforts in the University of Tampere have recently included implementation of e-Learning courses to Russia and China. Sourthern Federal University, Russian Federation; University of Tampere, and University of Art and Design, Finland, have investigated the area of intercultural communication and use of emerging ICT practices in learning, knowledge sharing process and education. (Tsaturova, Avetisova 2009).The start for this research and projects grew out of the great interest of Taganrog State University of Radio Engineering (TSURE) in international cooperation with Finnish academic circles and the initial request, addressed to one of the authors to organize the seminar dealing with the contemporary problems and developments in the European education and uses of technology in it.

In China, graduate students who participated in Prof. Fan Yihong's course of "Globalization and international education" connected in 2009 with Prof. Tapio Varis for a web-based live teleconferencing course on Media Literacy at the Institute of Education Xiamen University.

The successful implementation of these new learning possibilities requires new literacies and e-learning competencies which are central challenges both world-wide and regionally. In Europe the goal of achieving an e-Europe and social justice and avoiding the digital divide demand that the challenge be met by working to ensure that all sectors of the European society are able to benefit from the employment, educational and development opportunities offered by information and communication technologies.

Definitions of literacy relate, at their core, to an individual's ability to understand printed text and to communicate through print. Most

contemporary definitions portray literacy in relative rather than absolute terms. They assume that there is no single level of skill or knowledge that qualifies someone as literate, but rather that there are multiple levels and kinds of literacy. In order to have bearing on real-life situations, definitions of literacy must be sensitive to skills needed in out-of-school contexts, as well as to school-based competency requirements. Media literacy is multidimensional while digital literacy may refer to the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers. Digital literacy can simply be a new way of thinking towards a new learning culture.

There is an urgent need to focus on the **digital content services** of different disciplines and fields of applications in order to avoid biased e-library services. Learning technology standards are critical because they will help us to answer a number of open issues. Whether it is the creation of content libraries, or learning management systems, accredited standards will reduce the risk of making large investments in learning technologies because systems will be able to work together like never before. Accredited standards assure that the investment in time and intellectual capital can move from one system to the next.

There are majors challenges for development of working-life skills that are not bound to any continent or historical tradition but globally equip students with skills that enable them to build up their own future and life in global and multicultural environment. Some educational institutes are already expanding out of the geographical borders to global actors on the field when utilizing e-learning and possibilities of ICT. Learning community and tutors may be distributed in various countries and cultures. The trend is also towards examinations and qualifications of skills that are internationally recognized.

With the steep rise of multiculturalism, there is an increasing need for people to be able to deal effectively and competently with the diversity of race, culture and ethnicity. In general terms, one's ability to deal effectively and appropriately with diversity is referred to as intercultural competence (ICC).

Intercultural competence is a relatively new concept and there has been no consensus about it so far. The concept of intercultural competence is also referred to with different terms; some refer to it as multicultural competence while others call it cross-cultural competence.

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Traditionally speaking intercultural competence or competence in general is often divided into three main components:

> **Knowledge**: also known as cognitive factors
> **Motivation**: also known as attitude
> **Skills**: also known as competence in social relations and communication behavior

Intercultural competence scholars consider Knowledge, Attitude and Skills to be the key components of ICC and each of these components alone is not sufficient to achieve intercultural competence. Overall, the process of intercultural learning is intense for numerous reasons and its content can be difficult to grasp. Firstly, it requires learners to reflect upon matters with which they have had little firsthand experience. Secondly, unlike more conventional approaches to education, which tend to emphasize depersonalized forms of cognitive learning and knowledge acquisition, it includes highly personalized behavioral and affective learning, self-reflection, and direct experience with cultural differences. Thirdly, "learning-how-to-learn", a process-oriented pedagogy, replaces learning facts, a product-oriented pedagogy, as a major goal. Fourthly, intercultural education involves epistemological explorations regarding alternative ways of knowing and validating what we know, i.e. the meaning of truth and reality (Paige, 1993).

Additionally, becoming inter-culturally competent demands a wide range of culture-general knowledge from peoples' behavioral repertoires and people are also required to apply that knowledge to the culture that they interact with. People also have to be emotionally and skillfully responsive with various ranges of choices in order to act competently depending on the limitations of any given situation. They also have to have extensive intercultural interaction experiences and have the know-how of adjusting to different patterns of thinking and behaving.

There is a long tradition of international cooperation in the field of higher education. It is evident that the common global challenges are leading to a intensified regional and international cooperation also in the field of skills. Good example of this is the growing emphasis on skills and competencies in the common policy of the European Union. Another example is the intensified global cooperation within the framework of skills competitions. International skills competitions offer an excellent tool for the analysis of the

common future needs of industry and societies all over the world, for the determination of the key skills needed in different trades, for cooperation between skills and working life and for improving the quality of for skills by transferring good practices and new innovations and by giving a possibility to international benchmarking. The number of member countries of the WorldSkills International, the organization responsible for the skills competitions of young professionals, has gradually increased, being at the moment 48. The members represent countries from all continents and from industrial to newly industrialized and less developed countries.

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