

# HOW TO FACE TECHNOLOGICAL TSUNAMI IN EDUCATION: Regional Clustering?

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**"New technology makes access possible to a vast range of digital resources. The environment makes some activities possible and constraints others but it does not change the fundamental processes of human learning"**

**(David Boud, 2001:15)**

## ABSTRACT

**In this technological age, while the training needs are growing like a snowball due to new skills needs, we are on the other hand increasingly served by free on-line educational materials coming on with an incredible speed .Two reasons dominate this change the first one and the most important is new learning trends, the second is wide technology use in daily life.**

**Regarding the costs of sustainable educational on line tools, instruments and trainings materials, technology developers and related stakeholders looks after new ways and propose promptly new solutions to public and private institutions and to the business world.**

**New solutions encourage learning tools and technologies to move to cloud, to share as much as possible educational contents, products tools and services. However at this step we are confronted to social cultural linguistic, administrative and services related barriers. Technology based education became integrally a new industrial sector with its own lateral sub brunch and financial resources, requiring meta solutions given the number of a thousand of potential end users , development, management, hosting, certification, security, backup related costs.**

**Keywords:** Educational technology, E-learning, M-learning. U-learning, anadolu University, Turkey.

## INTRODUCTION

**At the dawn of the 21st century, with the pressure on governments of many developing countries to expand the use of Information Communication Technologies (ICTs) by international business and civic organizations like the World Bank, and as result to reduce the "digital divide", Higher Education Institutions (HEIs) are confronted with the unrelenting difficulty to put into place learning technologies (aka e-learning) in spite of limited funding possibilities and risks posed to educational quality.**

**One can observe the existence of a strong technological and economic push for HEIs to adopt e-learning strategies in many regions of the globe. This is driven, partly, by the requirement of industry for lifelong learning and the influence of a process of global change. Simultaneously, there is a localised attempt to raise awareness among HEIs of the pedagogical issues that underpin good teaching and learning practice, stimulated by the creation of accreditation programs and related topics. These significant drivers of change are often experienced by these HEIs as discordant if not harassing mandates.**

**Understanding the momentum behind the rising focus on educational technologies requires some understanding of the national governments' view of globalization and the assumptions that have been made regarding the relationship between globalization, new technologies, knowledge and development. From a global perspective, now it is a time when authorities start realizing the need to develop effective strategies and anticipate the rising chorus of demands posed by a knowledge-based world, and to take steps which will ease the pressures for access while upholding the national interest of achieving a good quality higher education and responsible stewardship of local and global resources.**

**Furthermore, built upon government and market pressures, the correlation between education and quality of learning, the shift from teacher-centered to student-centered learning, the move towards lifelong, asynchronous, interactive and collaborative forms of learning, HEIs in developing countries need to be more ready than ever so as to enter this "age of knowledge" imbued by a "culture of learning". It can be argued that "globalization" has been consolidated by the extraordinary intrusion of new technologies, especially the Internet. Herein, 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.**

**Governments and corporations look at 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.**

**Policymakers, international organizations, higher education institutions and researchers in the field of education agree that ICT have the potential to stimulate international collaboration, to create flexible learning paths and to open the borders of the university. Most Western countries as well as other nations are increasingly embracing e-learning in education and training, both within their classrooms and in distance education. Arguably the most important consequence of new digital applications for higher education is that they make major innovation in education possible. In response to the need for education reform in most of the so-called "developing" countries, local governments have called for the reform of education to meet the needs of a twenty-first century which is affected by a globalisation process and knowledge-based requirements.**

**In most countries around the world, a new social and economic paradigm has restructured the traditional dimensions of time and space within which we live, work and interact. The industrial revolution of the 19th century and the scientific revolution of the 20th century have prepared the necessary conditions for the rise of what we now today as a knowledge-based economy and society.**

**This concept is directly intertwined with the appearance of the information society. This is a metaphor that has been used as a reaction to the evolution of globalisation in the international context, enhanced by the development of ICTs and the social and technological changes produced by these new technologies. These changes have influenced social theorists in understanding contemporary times very much in terms of the information society, rather than postmodern.**

**Over the last decades, from policy-makers such as Al Gore to sociologists like Anthony Giddens or management scientists like Peter Drucker, the claim has been made that we are living in an age in which society is organised around information and knowledge. It is argued that information has been the starting point of new industrial and production processes. The shift to the informational age has been sustained by accelerated technological innovations during the second half of the twentieth century, mostly in the areas of computing systems and telecommunications.**

**Manufacturing organizations, for example, have adopted an information-based strategy that incorporates information technology (IT) to maintain and deliver information required for knowing what, when, and how to make economical products. Correspondingly, information-based processes, placed within the larger context of the "new economy", are better understood as a development of the "informational age", global in reach, sustained by social and financial networks, and enabled by ICTs.**

**The exchange of knowledge and information between societies -primarily through trade, the displacement of persons and later the transmission of written information- has played a major role in the process of producing, with fewer inputs, more goods and services of better quality. It is generally accepted that advantages in technological competences lead to a better performance in innovation, international competitiveness and trade and many pieces of evidence that attest the importance of technological change as a source of economic growth.**

**The accent herein is on the emergence of the "new economy" and its effects in terms of growth, trade and investment across all the sectors making use of the new ICTs. While information has been considered an important source for the advancement of humanity and of individuals, the difference today is that information is now viewed as a basic raw material and consumed at an enormous scale in socio-economic processes, and thus having important competitive value.**

**Already in 2001 McConnell International established a map based on the impact and innovation of all sustainable programs, reforms, and policies leading to an increase of connectivity, e-leadership, information security, human capital, and e-business climate. Their studies showed which countries were moving towards a knowledge-based society with actions that have the potential to make a real difference in their ability to participate in the digital economy. Today's country leaders in impact and innovation are the places where business opportunities are more likely to develop in the short-term. Change dominates our world. Education is a major vehicle for initiating, managing, and sustaining or stabilizing our environments affected by change. The educational needs of the post-industrial society are different from those of the industrial society. Despite the numerous and volatile changes we have undergone as a society and civilization, education still remains the most powerful force for individual and collective transformation.**

**Globalization and the revolution in technological communications are major forces of change in education. Education must meet the growing demands in a competitive digital and knowledge-based economy. Distance education when well equipped can be used to solve the problems of undeveloped societies. Easily accessible and multicultural approaches shall of course better serve global concerns of under development and help solve the educational problems.**

**ICT is an important political mean and education can be a powerful political tool that can be used for both assimilations and/or for developing societies that are in need of such opportunities.**

**Due to the constant changes in skill demanded by occupational and professional fields distance education needs to be interpreted, measured, and compensated in new ways. The use of information communication technologies in distance education (DE), makes international collaboration feasible.**

**The need for trained and since online education can service more students, a continued surge in online programs will be the result for many higher educational institutions, educated professionals and leaders continue to expand worldwide and academics, managers, facilitators, and technologists will be in demand. As the student population continues to increase with voluminous numbers, online education may replace, to a large extent, traditional brick and mortar delivery methods within the next 15 to 20 years or less.**

**In fact distance learning has changed dramatically since the 1990s to become a dominant part of the landscape of the higher education global industry of the 21st century. Rapid technological growth and advances in computer technologies have contributed to increasing use of the Internet in higher education. To remain competitive, educational institutions are pressured to embrace DE.**

**In distance education, transformation would refer to dimensions or levels of change over a period that has become significant in practices in the field. For example, the use of more sophisticated media, or the noticeable change in the range of programs represents issues that would fit within a period.**

**Today we have mega-distance learning corporations, colleges, and universities operating on all continents and offering training, continuing education, and academic degree programs in various fields. As such, many distance-learning institutions have emerged to become major players in education, some becoming complements, alternatives, and even replacements to the traditional or on-campus programs and schools or educational formats.**

**Teaching and learning modes where teachers and students or educators and learners are separated by time, distance, and location have become the most convenient and fastest, "easiest" ways to meet the growing demands for degrees, education, certification, and training.**

## **OPEN and DISTANCE LEARNING ASSOCIATIONS**

**Similar to traditional educational administrators, distance education/learning associations DLAs or leaders meet a variety of problems and challenges in ensuring the effective and efficient operation of distance learning schools. The increasing number of institutions offering DE programs has increased the need for institutions to share their experiences and to collaborate.**

Despite the virtual side of distance learning, administrators still need to carry out the managerial role of controlling and monitoring for standards, whether that standard is in reference to programs, curriculum, or instructors. They need not only in obtaining, but also to work hard, maintaining relevant state and agency approval for programs. (<http://www.westga.edu/~distance/ojdla/spring141/McFarlane141.html>)

In addition, faculty and administrators should work collaboratively in the practice and theory of online delivery methods.

Quality assurance, accreditation, licensing and recognition of qualifications are crucial issues for both the countries both importing and exporting educational services.

Although some countries regulated these educational activities by law, the problem of recognition has not been solved exactly yet. Moreover, the majority of the existing regulations mostly included face-to-face education. Especially developing countries are mainly importers and these countries express their concerns about the liberalization of trade and cross-border movement of educational activities due to not having adequate legal regulations.

Some researchers argue that accreditation practices can be coordinated better within regional networks and international activities, which will ease processes regarding recognition of diplomas and qualifications as in the Bologna Process. In this regard, European Association of Distance Teaching Universities (EADTU) developed E-xcellence criteria for e-learning programs in 2009 within a project supported by the European Commission. E-xcellence Quality Label is provided to the institutions or programs applying and completing the process successfully.

What is indisputable is that leaders in distance learning must constantly be aware of how to adjust, evaluate, and assess the validity of programs, content, and emerging technologies to remain competitive and viable in this new society.

Leadership requires developing both instruction-oriented technologies and technology-intensive learning-by-doing approaches; applying this combination of pedagogical strategies necessitates numerous assumption-breaking changes in the organizational context of the classroom and the roles of teachers, parents, and students. Creating and conveying technological visions powerful enough to displace traditional educational models is one of the most challenging aspects of leadership.

In summary, leadership is a role fraught with difficulties, requiring both wisdom and maturity. In articulating the requirements of leadership is to encourage everyone to lead, always. If each of us were to act in the ways described above-every day, however imperfectly-educational technology and distance education application could be the driveshaft for restructuring education and shaping a bright future for our society.

Regional, national and international organizations are continually under development in the field, and are playing significant roles in developing DE concepts and implementation methods. This requires DLAs to keep abreast of new developments in the fields. This can be accomplished by being members of

distance learning organizations.

## **TURKEY SHOULD UNDERTAKE A LEADERSHIP ROLE**

In fact globalization has affected many areas of society and will continue to shape the future of education and content delivery indefinitely. The impact of globalization has led to exceedingly higher enrollments for many universities and colleges. It has become increasingly apparent that individuals need to consistently learn new skills in order to remain employed and competitive in a knowledge and digital economy.

New institutions claiming to deliver courses globally are emerging; existing institutions are trying to change their teaching strategies in order to position themselves to deliver their courses more effectively on a global basis; and commentators are predicting the globalization of education as more and more institutions, in the face of competition both real and perceived, adopt online technologies in order to teach globally.

Distance learning programs must be managed and led effectively by administrators with broad knowledge and understanding of the education industry and these regulating variables. Leaders in distance learning must constantly be aware of how to adjust, evaluate, and assess the validity of programs, content, and emerging technologies to remain competitive and viable in this new society. On the other hand it is a well-known fact that the international distance education organizations in the world are not well organized and functional in this area in the name of educational institutionalism.

To fill this gap, Turkey might have a leadership role in the distance education field in this region and can organize the practices of the regional countries in academy and practice among Distance Education Institutions From Balkans, South Eastern Europe, Baltics, Turkic's, Caucasian, The Middle East Arab Peninsula To North Africa Regional Map: Scandinavia, Baltic, Turkic, Caucasian, Middle East, Arab Peninsula and North Africa regions countries.

The aim of the leadership role shall be to foster developments in open, distance, flexible and e-Learning providing a platform for co-operation and collaboration by developing links which mentioned above the region and institutions, networks, companies and other agencies in the field between in these countries, societies' values and realize that they have more to share. Turkey's highly strategic geopolitical position gives the country the role of a mediating bridge of culture and facilitator of regional trade and politics. Turkey has also a great historical background and diverse population from very ancient times. 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.

Anadolu University is one of the pre-eminent innovative universities in Turkey. 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.

The increasing number of open universities is academically an advantage. This is because distance education is not just a product for the global market some times; and it's pedagogic and quality related issues are very important. The

learning communities that the ICT create and international channels sustaining collaboration can lead to high quality distance education programs.

Underdeveloped countries have some problems in utilizing a distance education system because they are handicapped with the population growth that overwhelms the region's carrying capacity, remote and separated rural areas, lack of enough skilled teachers, excessive school dropouts, high illiteracy rates, and not enough resources. At a time of rapid technological change, and contested, complex concepts associated with globalisation, knowledge is becoming a primary factor of production in a global economy. As knowledge is becoming a primary factor of production and competitive advantage in a global economy, universities face macro challenges in responding to the exponential growth in demand for higher education, and to the changing concepts of globalisation, commercialization and competition. While the advancements in the Internet technology can theoretically support constructivist, learner-centred and interactive learning, challenges of Internet-enabled learning such as e-learning considered within the changing nature of knowledge, changing needs of society, changing teacher roles, and learner expectations need further investigation.

These challenges go beyond innovative ICT implementations to the design and development of a holistic university system, that responds national and global needs, and to the community of demand.

The basic purposes of leadership development ([http://www.aahea.org/articles/transformational\\_leadership.htm](http://www.aahea.org/articles/transformational_leadership.htm)) within the higher education system are:

#### **THE IMPORTANCE OF NETWORKING IN TECHNOLOGY BASED EDUCATION AND FUTURE MODELS**

The responsibility of citizens, private, public institutions, communities, in the another term, all of us, regarding the global sustainability target achievements is crucial. In fact any empowerment requires more knowledge acquisition. It means more training, more expenses. In technology education combination side, we have countless tools and facilities to upraise the awareness of all stakeholders.

So our object is to unveil, select, cooperate and use them properly. The following keywords may better define the future model:

- Collaborating
- Sharing
- Participating
- Access every where
- Low cost

#### **How It Goes In Practice? How A Well and Clear Definition of Interacting Components with Every Details Are Important?**

Recently we conducted IT tasks of an online pilot course over 55 countries and in 3 languages under a Life Long Learning Transfer of Innovation project . In this early stage of technology based education it was an amazing experience but it wasn't easy in IT side. It could be better managed by a well a clear definition of time, tasks frame, responsibilities and resources management. We gained a

**important experience regarding the behavior of beneficiaries coming from different cultures, countries, their involvement level, reactivates and practices. We recorded and analyzed their learning activities during six month of online pilot courses, received their feedback on all matter like the quality of content, learning approach and technology used.**

**How to exploit the experience gained by this multilingual, multicultural, international online training courses. Particularly, since there is a lack of skills and jobs, and when both are key factors regarding global sustainability. We are intending to transfer this experience by valorizing the importance of cooperation:**

- **The training needs are growing like a snowball**
- **Improving skill is necessary.**
- **Investing in training is expensive or complex**
- **We need to share resources and knowledge**

**Technology based education has become integrally a new industrial sector with its own lateral sub brunch and financial resources , requiring meta solutions given the number of a thousand of potential end users, development, data management, hosting, certification, security, backup related costs. We are basically confronted to perception problem regarding new learning methodologies, new technologies, functionalities, utilities supporting new and intelligent learning, they are mostly unknown, and the approach of user or buyer is limited to traditional class room approach.**

**However, flexible, customizable cloud based solution are emerging. The Amazing web data records collected during web related activities like subscription, survey, enrollment social tools and similar activities and learning process highlight the big data management sector.**

**Cloud Computing based resources repositories sharable networks allow anywhere any time access, reduce software hardware costs and offer wide storing opportunities. Since the consumption of technology is growing in informal, non formal or formal education parallel to our needs , dependence, it is time to manage technology based learning by a big data approach and converge resources at regional level, manage and solve in suspend problem as linguistic, social cultural and administrative level.**

**With a Regional Clustering solution:**

- **the analyses of learning needs,**
- **the definition of common learning needs and methodologies**
- **the design of learning map,**
- **the management of content and IPR**
- **the development of common repositories of learning material and applications the measurement and certifications standards is possible.**

**Activities may be converged and jointly coordinated over people, communities, institution who share common learning interests and looking to enhance their skills .**

**Concerning training costs, technology comes with cheaper solution. Regarding**



the costs of sustainable educational online tools, instruments and trainings materials, technologies developer and related stakeholder offer new ways, new solutions. Free on-line educational materials coming on with an incredible speed increasingly serve us.

Two reasons dominate this change. The first one and the most important are new learning trends; the second is wide technology use in daily life.

However many parameter like technological deployment, IPR, effectiveness, management, maintenance remain as complex matters requiring vertical and horizontal cooperation. Although cost effectiveness matter related to technological infrastructures, services appear manageable, linguistic, cultural and social barriers remain unsolved.

### **MEGA ONLINE CLASS IS THE FUTURE OF TEACHING?**

Recently free online classes opened by Illinois Urbana, to students around the world through Coursera \* has attracted nearly 32,000 students in its first week. \*Coursera A for-profit company founded by two computer-science professors from Stanford.

The company's model is to sign contracts with colleges that agree to use the platform to offer free courses and to get a percentage of any revenue. More than a dozen high-profile institutions, including Princeton and the University of Virginia, have joined. Three international universities also are involved: Ecole Polytechnique Federale de Lausanne in Switzerland, University of Edinburgh in the U.K. and University of Toronto in Canada.

Free online courses that reach tens of thousands of students around the world may not be the future of education, but they could be part of the future of how education is delivered, "and I wanted to be part of the new direction," said Jonathan Tomkin, a professor in the UI's School of Earth, Society and Environment whose "Introduction to Sustainability" was the first UI course to debut on Coursera. A useful instrument to analyze the level of technological development of every country is the e-readiness index which was originated by the intent to provide a unified framework to evaluate breadth and depth of the so-called 'digital divide' between more and less developed or developing countries. Chart 2 shows that Western European region has the advanced scores across all e-readiness indexes. Central and Eastern Europe has a better performance than North Africa and Middle East and Central Asia.

North Africa and Middle East have more progress with the online services, participation and infrastructure indices compared to the countries of the Central Asia. On the other hand, the Central Asia region has a higher score of human capital, which measures the educational background but a very low score in terms of infrastructure, e-government and e-participation.

Many countries including most reviewed 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.

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, 2007, 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 decades. 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**

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, 2007: 29).

In terms of interaction, a critical transformation has been experienced in distance learning processes together with internet. The ability of the learner to communicate with the teacher (tutor) and other students when he/she does not understand the topic, benefiting from the experiences of the people at the other end of the world, accessing to the correct and desired resource via connections have caused to structural transformations during learning processes. In this regard, owing to interaction, informal learning and the configuration of the learning process by the learner have outlined the basic properties of e-learning concept.

It is very important to understand the Web 2.0 affects to the e-learning systems. According to Kaplan-Leiserson (2009) web 2.0 technologies bring the learning responsibility to the learner by the applications such as blogs, podcasts, communities of practice, and wikis; and simulation and games which use games and simulations in the sake of learning will be under the spotlight more than the other methods/approaches in the future. Web 2.0 enables not only the sending and downloading of information but also the creation, uploading and distribution of content (written, visual and audio visual) from both sides. Therefore educational institutions will need to develop a collaborative culture with their customers (Yamamoto, 2010).

On the other hand Christensen's (2008) "disruptive technology" concept can be applied for the E-Learning technologies. At the end, the most likely outcome will be that the classical method of learning will only be used for the areas for which distance learning is not suitable.

### **Mobile Learning (M-Learning)**

A distinguishing feature of our society at the beginning of the twenty-first century is the rapid rate of technological and social change (Peters, 2009) and the need of being able to access information anytime and anywhere. Hence mobile technologies become more popular due to its portability and facility for wireless connection. The communication and data transfer possibilities created by mobile

technologies (m-technologies) can significantly reduce dependence on fixed locations for work and study, and thus have the potential to revolutionize the way we work and learn (Peters, 2009). Meanwhile, mobile technologies leverage the opportunities offered by e-learning and enable brand new opportunities. In this context, M-learning is considered as a new channel for the individuals who are mobile but aim to learn.

With mobile technologies "Any time, anywhere, any device" promise of e-learning is going to become actually applicable. Moreover, mobile technologies are going to provide opportunities to be "always on" and connected for twenty-first century learners and to get information on demand with "just enough, just in time, and just for me" approach.

There are various definitions of mobile learning in literature on mobile learning. Pinkwert et. al. (2003) defines m-learning as "e-learning that uses mobile devices and wireless transmission". Colazzo, Ronchetti, Trifonova, and Molinari (2003) state that, "A mobile learning educational process can be considered as any learning and teaching activity that is possible through mobile tools or in settings where mobile equipment is available". Traxler (2005) defines m-learning as "any educational provision where the sole or dominant technologies are handheld or palmtop devices." Laouris & Eteokleous (2005) defines mobile learning as a function of time, space, learning environment, content, technology, learner's mental abilities and pedagogy. According to Schreurs (2007) mobile learning means the provision of education and training materials and courses on wireless devices: portable computers, PDA's (personal digital wireless devices), and mobile telephones. With keeping these definitions in mind, in more general form mobile learning can be defined as "the learning method of the learners who are not static in a certain space or at a certain point, who are mobile or who benefit from portable technologies (laptops, telephones, PDA, XDA...; WAP, GPRS, 3G...), which emerged after e-learning"

**Figure :**  
**A general classification of m-learning systems,**  
**(Georgieva, Smrikarov, & Georgiev, 2005)**

There are several categories of portable computing devices, usually classified as portable computers (laptops, keyboardless tablet PCs, Internet tablets, Ultra Mobile PCs), personal digital assistants (PDAs, XDAs) smartphones and cell phones (Houser & Thornton, 2009). The existing wide range of mobile devices and wireless technologies gives an opportunity to realise different systems for mobile education shown in Figure 2 (Georgieva, Smrikarov, & Georgiev, 2005)

Mobile information and communication technologies are important enablers of the new social structure. We are experiencing the first generation of truly portable information and communications technology (ICT) with the relatively recent advent of small, portable mobile devices that provide telephone, Internet, and data storage and management in products such as: i-Mate, O2, Palm, HP, and Bluetooth (all registered trademarks) that combine mobile telephony, removable memory chips, diaries, email, Web, basic word processing and spreadsheets, and data input, storage, and transfer (Peters, 2009).

With mobile technologies a teacher, student or administrator can do amazing things: take notes, calculate, sketch ideas, collect data, access resources, manage activities, access the Internet wirelessly, involve discussions, use social media, play games, watch video, listen audio book, work and study collaboratively, etc. M-learning practices are used in two fundamental ways: to support face to face education in classroom and as a component of distance education.

Today mobile technologies have become an integral part of the learning activities. But due to the very small screen, limited memory capacity and a large diversity of mobile devices, a handheld seems to obstruct a good learning experience (Schreurs, 2007). The paradox facing mobile learning today is that devices that were not designed for learning are being used for learning (Kukulka-Hulme, 2005). Although different applications have been developed at various universities, certain restrictions are in question such as the height of connection costs associated with mobile learning, the shortage of battery lifetime, insufficiency of screens and instability of standards (Salter, 2009). Hence challenges of mobile learning are listed as follows:

- Adapting the content to the needs of the mobile user
- Lack of pedagogical models for mobile learning environment
- Need of m-learning theory
- How to cover both formal and informal learning
- Mobile technology includes both hardware and networking applications, hence both of them are necessary for the existence of m-Learning
- Mobile learning management systems or integration of mobile technologies with current learning management systems
- Battery life of mobile devices
- Devices would be easily damaged or stolen

Beside those challenges, opportunities are emerging for learners, teachers and institutions from the increasing availability of low-cost mobile and wireless devices and associated infrastructure. Opportunities that mobile learning provides are listed as follows:

- Because mobile learning is highly situated, personal and collaborative, it will be truly learner-centered environment in long term.
- Mobile learning can be used to encourage both independent and collaborative learning experiences
- Mobile learning can help learners to identify areas where they need assistance and support
- Mobile learning can help to reduce resistance to the use of ICT and can help bridge the gap between mobile phone literacy and ICT literacy
- Reducing Pressure on PCs-mobile learning should be considered where it might reduce other aspects of institutional costs

### **Televsual Learning (Up-T-Learning)**

In 1980's TV used to be a broadcasting agent to the distance learning however we are facing a new phase we could call this up-t-Learning as an interactive platform.

Besides, computerization ratio has not reached 100% even in developed countries. Nevertheless, considering that there is a television even at homes of poor individuals in developing countries, it is possible to offer a brand new education channel.

**In relation, as a new way of reaching interactive information services, interactive television (t-learning) which offers new opportunities for lifetime learning and transformation from a passive environment to active environment and massive to personal, bears the potential of reaching a wider mass than the mass conventional education accesses, and should be considered as a learning platform of future generations. t-learning concept has been discussed within the conventional distance education practices and took its place in the literature. In the conventional distance education practices, interaction was tried to be obtained through telephone connections during live broadcast, and it was included in the form of interactions with various interfaces in video cassettes. Even, the continuity of face to face learning, turned into options such as virtual class through various considerations such as extra-classroom consulting and the development of technology. However, it gained a different aspect together with the present development of network technologies and convergence of technologies. Providing the interaction and intercommunication means of internet via TV seems possible in the near future.**

**IPTV is not TV that is broadcast over the Internet. IPTV converts a television signal into small packets of computer data like any other form of online traffic such as email or a web page. There are three main components of IPTV. First, the TV and content head end, where the TV channels are received and encoded and also other content like videos which are stored. The second component is the delivery network, which is broadband and landline network provided by a telecom operators. The third component is the set top box, which is required at the customer location. The packets are reassembled into programming by software in the set-top box. This box is connected between the operator's broadband modem and customer's TV.**

**Through IPTV applications, the systems that distribute television and/or image signals to wideband subscribers via internet protocol are newfangled. With the mentioned systems, television may become an interactive device which is always on and connected to internet, become a digital education, shopping, business and center at home, portals will be able to serve also via televisions and the individual will be able to build his or her own television channel. The convergence services of television and Internet make the TV viewing experience more interactive and personalized.**

**As a result, highly interactive and personalized education content can be delivered over IPTV environment.**

**The idea of "Personalized Education" refers to providing learning experiences tailored to each student's interests and learning styles towards a converged world, this offers an alternative solution for personalized education.**

**The question here is to tailoring the learning to the broadcast both personal and mass scopes. On the other hand the availability of the infrastructure and the extra costs for set top boxes bring complexity to building this kind of systems.**

**This has also problems of miscibility with these ordinary programs as some TV-sales shows. Questioning of the learning depth is another subject and other visual functions could bring some threats and opportunities to the system. These systems could be useful for technical learning or instant learning with their visual characteristics.**

### **Ubiquitous Learning (U-Learning)**

A decade ago, few could have predicted that the start of 2009 would see one-and-a-half billion Internet users around the world. Internet ubiquity offers connectivity to people wherever they are, whenever they want to access the network, with the device of their choosing. Ubiquity features safe, reliable, and continuous high-speed connectivity. Beyond Internet availability, ubiquity means that the Internet follows users seamlessly rather than users searching for it as they move about during the day from place to place, device to device (Pepper, Rueda-Sabater, Boeggeman, & Garrity, 2009). As a result of being "always on" and connected is going to change our learning habits, learning principles of connected society as follows:

- Learning and knowledge require diversity of opinions to present the whole...and to permit selection of best approach.
- Learning is a network formation process of connecting specialized nodes or information sources.
- Knowledge rests in networks.
- Knowledge may reside in non-human appliances, and learning is enabled/facilitated by technology
- Capacity to know more is more critical than what is currently known.
- Learning and knowing are on going processes (not end states or products).
- Ability to see connections and recognize patterns and make sense between fields, ideas, and concepts is the core skill for individuals today.
- Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.
- Decision-making is learning. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision.

In this sense we can say that "any time" in "any time, anywhere, any device" slogan will be replaced by "just-in-time" and the trend in the network community will be u-learning. U-learning can be defined as continuous connection between and amalgamation of the individual's physical world and virtual world without any separation of instruments. U-learning originates from the concept "Ubiquitous computing". Ubiquitous computing (also known as "Pervasive," "Ambient," "1 to 1," or "one to one") is about distributed computing devices in the environment, with which users are able to gain access to information resources.

The concept of ubiquitous computing and u-learning goes beyond portable computers. As new technologies evolve and more pervasive forms of technology emerge, computers will become 'invisible' and will be embedded in all aspects of our life (Jones & Jo, 2004). These devices can be wearable computers, or sensors and computers embedded in everyday objects (Kolomvatsos, 2007).

Therefore, ubiquitous learning is convergence of all learning types:

$$\text{ULearning} = \text{Elearning} + \text{Mlearning} + \text{Tlearning}.$$

U-learning could be evaluated as the prepared systems that to be ready to teach the learners or others. Nowadays we are experiencing early applications of u-learning, but state that many researchers have shown that u-learning activities can enhance students' learning performance and demonstrate the effect of u-

learning systems (Chen, Chang, Wang, 2008, Chen, Kao, Sheu, 2005, Hwang, Tsai, Yang, 2008).

A ubiquitous learning environment is any setting in which students can become totally immersed in the learning process. So, a ubiquitous learning environment (ULE) is a situation or setting of pervasive (or omnipresent) education (or learning). Education is happening all around the student but the student may not even be conscious of the learning process, and source data is present in the embedded objects and students do not have to do anything in order to learn, they just have to be there (Jones & Jo, 2004).

Ubiquitous Learning takes into account all of the above learning environments and refers to the kind of learning that occurs throughout our daily lives using computers. This term comes from the work in the 1980s, ubiquitous computing that identified computers as becoming an integral part of our daily lives.

In 2003 Harvard University launched its HDUL (Handheld Devices for Ubiquitous Learning) project to determine how Wireless Handheld Devices (WHDs) could enhance learning at teaching at universities.

They identified WHDs as cell phones, personal digital assistants, handheld gaming devices, and portable music players. (McIsaac & Moreira, 2008).

## **CONCLUSION**

It is not easy to reach this kind of learning systems. The conditions of information society should be caught. These benefits will be thrived very fastly.

Therefore some could easily get the learning some could the other way round. Similar to the rest of the world, online education applications are also emerging in Turkey.

Currently 33 universities are offering 68 different online programs.

These institutions and their programs mostly started as distance learning that should be used as an affiliate or support programs of their general or classical learning and training programs.

However as we have mentioned there are new ways to reach the learners which we attributed as a vitamin metaphor. All these systems that would help for the learners from different scopes.

Distance learning on the first hand is mostly for the distant scaled and influenced very much from the classical learning.

Some technological advancement confront e-learning and m-learning and up-t-learning to the system which are more interactive.

Since there can not be a single application of technology, there will not be single education system in the future. Some of them would replace their status to the other or merge.

Then u-learning could be evaluated as the prepared systems that to be ready to teach conscious or unconscious situations.



For the future these institutions should be ready for different kinds of competition and affections of these above mentioned learning systems. They should choose one of these specialties and develop their experiences.

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