

# Involvement of Technological Solutions towards - Enhancing the Quality of Higher Education in India: A Research Study

A. Senthil Karthick Kumar

Dr. A. M .J. Md. Zubair Rahman

T. Thiyagarajan

## **Abstract**

*Now a days, the use of technology as a tool to develop the learning environment has become the key factor in the context of globalization. Integration of technological and communication support produce wonders to happen across the universe. Learning becomes easy and findings become cheaper. How to utilize this opportunity is the major problem. In the aspect of research and development of any individual, leads to the search for information which may be or should be useful towards the context of the subject. From that point, it leads to another innovation; this is a known fact in the research community. In this paper, the researcher point of view along with his aspects has been discussed with the context of finding how our Indian educational sector is moving forward towards the electronic learning environment. If so what are the benefits that our country will obtain in the forth coming years are discussed. The discussion in this paper will show how we can lead to obtain the educational system in a better way. Educational institutions are inevitable part of society [1]. Most of the research starts with theoretical analysis, deep theoretical analysis will produce a better quality of findings which produce a better out fit to the society. In that outset the researcher planned to produce a paper on the basis of index term especially in to the area of learning methods, educational technologies, electronic learning, computer aided instruction, courseware, content personalization, information and communications technology, barriers insight and curriculum development and so on. This paper presents a general and effective approach to extract metadata information from the e-learning contents and provide a general paradox how to create a better learning environment.*

**Keywords:** E-Learning; Educational Computing, Educational Technologies Virtual Learning Environment

## **I. Introduction**

As per the statistical report, India has the following number of universities, granting colleges and affiliated colleges. Indian Higher Education Statistics say there are 700

*Research Scholar, Research and Development Center, Bharathiar University, Coimbatore, India Pincode-641046. Email: karthickmcamba@gmail.com*

*Principal, Al-Ameen Engineering College, Erode, Tamilnadu, India. Pin code-638104, Email: mdzubairrahman@gmail.com*

*Assistant Professor, Department of Computer Applications, Nehru Institute of Information Technology and Management, Coimbatore, India Pincode-641105, Email: thiyagarajan.psg@gmail.com*

degree granting institutions, 35,000 affiliated colleges, and 20 million students' enrollment. Top 4 fields of study are 37% Arts, 16% Science, 18% Commerce & Management, 16 % Engineering & Technology. Source: UGC| Prepared by DrEducation.com. Source for Table: 1, Table: 2, Data courtesy by Dr. Rahul Choudaha from www.drededucation.com [2]. Globally it is an accepted fact that the internet usage has grown tremendously in the day-to-day activities of human life. The technology and life has become the two sides of a coin inseparable from each other. Especially when it comes to knowledge sharing and recent trends in learning system, the students prefer to be on the net to acquire the knowledge [3].

**Table 1:  
Higher Educational Institutions (Universities and Colleges) in India, Source:  
Reference [2]**

S.No	Type of Institutions	Number
1	Central Universities (Public)	44
2	State Universities (Public)	306
3	State Universities (Private)	154
4	Deemed Universities (Private and Public)	129
5	Institutional of National Importance (Public)	67
6	Total Degree-granting Institutions	700
7	Affiliated Colleges (Public or Private)	35,539

**Table 2:  
Enrollment of Indian Students by Level of Education, Source: Reference [2]**

S.No	Level	Number('000)	% of Total
1	Graduate (Bachelor's)	17,456	86%
2	Post-Graduate (Master's)	2,492	12%
3	Research (Doctoral)	161	1%
4	Diploma / Certificate	218	1%
		20,327	

**Table 3:  
India Internet Users Statistics as on July 2014.**  
Source for Table: 3, Statistical Data Retrieved from  
<http://www.internetlivestats.com/internet-users/india/> [4]

Year	Internet Users	User Growth	New Users	Global Rank
2014*	243,198,922	14%	29,859,598	3
2013*	213,339,324	37%	57,763,380	3
2012	155,575,944	27%	32,605,503	3
2011	122,970,441	36%	32,548,593	3
2010	90,421,849	48%	29,486,779	4

As per Table: 3 it clearly states that there is a tremendous growth which India is rolling on. Though India is marching towards the internet era in wide spread way do we utilize the opportunity of this communication network towards the learning environment is a big puzzle. As per Table 1, and 2, it clearly shows that, we are having enough number of users to utilize the resources, but does this make any kind of changes in educational industry? The puzzle behind this is does students community is getting benefited? Right now in India, educational industry need to grow in different paradigm, a paradigm shift towards the web learning sector, which will produce the quality along with informative young generation.

## **II. Literature Review**

As per report provided by Hanover Report Cited the following against India growth rate for distance learning as follows. Distance education has been in existence for centuries, believe it or not, since the mid 1800s. Earlier distance learning programs were typically in the form of correspondence, requiring learners to read study materials, complete assignments and tests, submit assignments and tests via postal mail, and await results. Today's distance learning options are more often available via the Internet, making them much more flexible, convenient, and timely options for learners worldwide, wherever Internet access is available. **India trends:** One of the fastest growing demands for more distance learning options, with over 25 percent of its students enrolled in distance education among its national, state, and open universities. The Indira Gandhi National Open University (IGNOU) had about 335,000 students enrolled in 2004; they offer degrees in agriculture; education; law; tourism and hotel management; computer and information sciences; journalism and new media studies; engineering and technology; humanities; sciences; health sciences; and performing and visual arts [5]. Mark Nichols (2003) theorized ten hypotheses for E-Learning, six of which I consider to be of particular validity: (a) the choice of E-Learning tools should reflect rather than determine the pedagogy of a course; how technology is used is more important than which technology is used. (b) E-Learning advances primarily through the successful implementation of pedagogical innovation. (c) E-Learning can be used in two major ways; the presentation of education content, and the facilitation of education processes. (d) Effective E-Learning practice considers the ways in which end users will engage with the learning opportunities provided to them. (e) The overall aim of education, that is, the development of the learner in the context of a predetermined curriculum or set of learning objectives, which does not change when E-Learning is applied. (f) Only pedagogical advantages will provide a lasting rationale for implementing E-Learning approaches [6]. Understanding the pros and cons of a research is possible only through a proper literature review. Only when looked into the previous literatures a researcher can understand the problems and the results of the previous studies. Going through the various literatures the following concepts were understood on E-learning [5]. E-learning can be understood as an educational process, using information and communication technologies to create training, to distribute learning content, communication between students and teachers and for management of studies [7]. Learning in digital and connected age is not individual

knowledge acquisition, storage and retrieval; rather, it relies on the connected learning that occurs through interaction with various sources of knowledge (including the internet and learning management systems) and participation in communities of common interest, social networks and group tasks [8-9]. A more formal definition of E-learning is “the delivery of learning, training or education program by electronic means, e-learning involves the use of computer or electronic device-in some way to provide training, educational or learning material” [10-11]. Thanks to the wireless revolution brought about by the expansion of devices such as laptop, mobile phone, PDS (personal digital assistants) in late 1990s made distance education process independent from time and place [12-13-14-15]. While the technologies used in distance learning changed more slowly in the beginning, it has started to change faster with digital age and this speed gained momentum continuously. In fact, the shifts in paradigm technological developments and the experience obtained through the use of technology in the classroom and the distance teaching clarified the relation between the technology and learning [16]. In today’s digital society communication has evolved, and sending and receiving an email is a basic skill, the new media allows now live conferencing, video sharing, social networking, collaborative tools, that permit the student to create, work collaboratively and to communicate in a more direct way their peers and their teachers. In fact, we can take a risk and say that lifelong learning has evolved with new media. Instead of merely searching for information, applications such as bookmarking, feeds, tweeter and pinboards, digital portfolios, etc., along with the possibility of creating your own personal webpage, gives also the chance to create a PLE – A Personal Learning Environment [08]. Technological advances which include computing and Information and Communication Technology contribute to integrating and reducing distances between stores of information and the people who need them, and also helping them to obtain new skills, a key element in knowledge society [17]. E-learning has grown rapidly and it supports many factors, like “ease access to information, reflection, lack of any need to space and high levels of time, there is a growth personality and job performance ability with more independency, criticism and curiosity, transaction, knowledge management, knowledge based system, knowledge production, cooperative learning are the results of ICT in teaching and learning process [18-19-20]. The new modalities of distance education have changed the traditional way of teaching and acquired their own identity and are today deemed as E-learning and M-learning [17]. In learning system instructor plays a vital role for transferring the knowledge to the learner’s community. With reference to that an interactive knowledge transfer system provides more input to the students. Hence the backbone is the technology. The technological advantage sometimes diminishes the instructor’s input by distracting the curiosity of the learner’s community. Morgan Keegan’s investments analysis team deems e-learning as a technology that fully leverages the distributed power of the internet and encourages investors to consider the “e” in e-learning to represent “effective” [21]. The number of students aspiring for education is becoming larger day by day, making it impossible to develop the traditional infrastructure (class rooms, Physical libraries, hostels) to cater to the ever growing need. Developing online systems can help meet these growing demands [22].

### **III. New- Fangled Environment towards Learning System**

From an education point of view, there are new challenges too: a new vision of the educational paradigm is required, where the teacher has no longer the main role and establishes the pace of learning process [23]. Though there are a number of causes for the dramatic change in educational industry, it has been reflected from the study that only a few factors contribute more like, recent technological developments lead the widespread use of web-enhanced technologies at higher education institutions owing to its advantages such as convenience, speed of communication, rapid and remote access to information, instant feedback, and cost saving [24-25-26]. As web technology is to be mature and widely applied, learning resources can be realized through a wide range of publishing and sharing through the internet. At the same time, various learning management systems also provide the production and publishing function for the learning resources [27]. Bates (1997) believes that there are four reasons for using technology in higher education. (a) To improve the quality of learning (b) To improve access to education and training (c) To reduce the cost of education (d) to improve the cost-effectiveness of education [28]. A representational view of mind and emphasize on its importance of embodiment can be provided in E-learning system. Visual interaction, self support, self learning, time management, anywhere and anytime characteristics are the main power of this system. The E-learning market is now more than 15 years old (the word "e-learning" was coined in 1998). Since then E-learning has continued its rapid evolution and radically changing the training industry, information has been supported by info-graphic [29-30]. Students learning ability has been improved well with the usage of electronic gadgets. Students are well associated with the internet and social media networks for sharing of knowledge, acquiring new concepts understanding the existing concepts and to promote themselves. It has become a basic need for the students for their survival of the fittest in the competitive world. Knowing this as an avenue the E-learning system has grown beyond our thoughts and stepping in to another research area, the semantic web. The current statistical report of learning system and training programs states that the corporate world is running with online learning system i.e. E-learning. According to new ambient insight report, The Asian E-learning market is expected to reach \$11.5 billion by 2016. It is revealed that the 2 countries with the highest growth rates in the world are Vietnam and Malaysia, with 44.3% and 39.4% respectively. Following closely behind these countries are Thailand, Philippines, India and China, with 30%-35% growth rate [29]. The year 2009 U18 launches India's first online degree programs, currently two universities enrolled their services for providing the online courses, (1) Assam Don Bosco University (2) Karnataka State Open University. Regarding the U18 as follows: U18 is an education services provider, working in collaboration with various University's (i.e. Universities recognized as per the University Grants Commission (UGC) Act of 1956), in the conduct of various distance education and professional continuing education programs that lead to the award of Diplomas and Degrees by the Universities directly, upon a successful completion by the enrolled candidate. U18 is by itself NOT a University, and is not to be interpreted as a University under the University Grants Commission Act, 1956. It is our vision to innovate in and lead the way for Online Education initiatives across the World. We shall leverage technology to ensure that our programs and platform benchmark as the 'best in class' on the following metrics. (a)

Credible Certifications (b) Quality Content (c) Affordable Programs (d) Easy to use Technology (e) Quick and responsive Support (f) Reliability in Systems [30]

#### **IV: Conclusion**

India has the largest share of youth population which needs to be channelized into diverse & multilevel occupational areas. As suggested by the statistics, distance-online learning can save the day but same is yet in embryonic stages in India. Community colleges are an alternative system of education which aims to empower individuals through appropriate skill development leading to gainful employment in collaboration with the local industry & community [31]. E-learning market in India was valued at INR 18.41 Million in 2010-11 and is expected to grow at a CAGR of 20%. Increasing internet penetration, low existing coverage and rising demand are expected to develop this market strongly in the near future. This sector has attracted large investments and is slated to lead to strong growth opportunities for the education sector. "The global market size for eLearning is predicted to grow more than double by 2017 at CAGR of 23%" Higher Ed eLearning is major market revenue generator in eLearning industry today and will exhibit the same pace and grow 25% CAGR till 2017. K-12 (Primary and secondary education) eLearning will grow at a CAGR of 33% in between 2012 - 2017. Corporate eLearning is the third contributor where in the CAGR has been predicted at 8% in between 2012 - 2017 contributing from \$25.5B to \$37.5 B [32]. The total enrollment in the conventional system stands at 136.42 lakh and there are another 36 lakh learners in ODL system. ODL constitutes about 22% of the total enrollment in the conventional system. "Enrollment in technical and professional courses in the ODL system is less than 10%. In DEIs, it is in the range of 6-10 % and in state open universities (SOUs) it is in the range of 10-15 %," the report noted. About 87% of the total enrolled students in conventional system are at the graduate level. In the ODL system also, the enrolment is highest in undergraduate programmes, but it is less than that in the conventional system. The percentage of students enrolled for post-graduate general programme in conventional system is 10.92 %, while the same in the ODL system is in the range 15-20% in SOUs and around 30% in DEIs. A very small proportion, almost 0.7% of the total number of students, in conventional system is enrolled for research. Out of the total research students (0.83 lakh), 86% are in the universities. There were 954 PhD students in open universities prior to UGC notification not allowing research programme through distance mode [33].

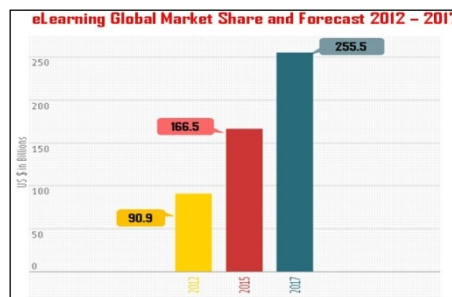


Figure 1: E-Learning Global Market Share and Forecast 2012-2017

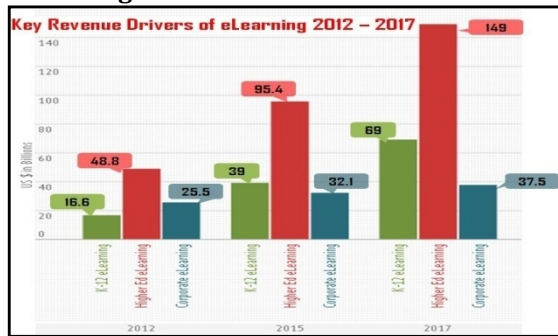



Figure 2: Key Revenue Drivers of E-Learning 2012-2017

If we talk about the future of Elearning, It's very bright in India. According to the research report, **"India E-Learning Market Outlook to FY'2018 - Increasing Technology Adoption to Drive Future Growth**, the market is estimated to grow at a CAGR of 17.4% over the period FY2013-FY'2018 driven by many factors such as increasing government initiatives to promote e-learning, increasing adoption of technology, shortage of quality education, convenience and cost factors and others. With an inclination in the adoption of e-learning method to facilitate talent management in corporations, the demand of custom e-learning content and technology would increase, thereby increasing the overall growth of India's e-learning market in future [34].

E-Learning can be classified as synchronous or asynchronous. Both terms to holds good to the extent to which a course is bound by place and / or time. Synchronous simply means that two or more events occur at the same time, while Asynchronous means two or more events occur "not at the same time" [35]. However, concerning the future of e-learning, participant's view of future tendency towards the provision of full online degrees, yet, they are skeptical; stating that e-learning setting cannot completely replace the traditional education settings [36]. As for as this research is concerned the researcher clearly states that the instructor and technology, though are two terms, should have hand shake and go in hand in order to synchronize and last long. In case of removal of any one term the educational industry will be at stake on the knowledge transmission part. E-Learning is a service and, though it is virtually delivered, nonetheless it has to comply with customers requirements (Pamfilie et al, 2008), it has to be considered as quality means of transferring knowledge. Bringing quality in creating and developing a successful e-learning programs involves a careful study if users expectations so that the most appropriate tools for learning may be used in order to transfer knowledge towards them in the most efficient and effective manner [37-38]. We need to support learning process of learners within and outside the campus, by mixing various tools and methods. It is important to provide learners necessary academic support, design different learning situations and experiences convenient to their learning styles, and provide social interaction through the methods selected by learner [16-39].

REACHING OUT		
Year	Distance teaching institutions	Student enrollment
1962	1	1,112
1970-71	17	29,500
1980-81	34	1.6 lakh
1985-86	40	3.5 lakh
1990-91	51	5.9 lakh
1995-96	57	10.3 lakh
2000-01	79	13.7 lakh
2005-06	117	18.3 lakh
2009-10	200	36.6 lakh



**Figure 3: Source <http://www.financialexpress.com/news/25--of-Indian-students-covered-by-distance-education--Study/945204> posted on May 4th 2012**

From the outcome of the research article in Financial Express published on May 4<sup>th</sup> 2012 it is clearly understood that E-learning can be considered as a supplement with more weightage in terms of contribution for the development of higher education in India. As per the report for 136.42 lakhs of enrollment in conventional system on an average 20% course material is contributed by E-Learning and for the 36 lakh learners in open distance learning system around 80% of the course material is through E-Learning system. Hence it is imperative that the contribution of E-Learning is stronger than the Traditional learning (Conventional Learning) except for professional courses where practical classes are unavoidable. Hence the researcher suggests that the curriculum in the traditional learning system should adapt more inputs from the E-Learning system by using the various web technologies and the availability of information in the E-World.

#### References:

- [1] Vigna Oza and Swaty Parab (2012). "Three Pillars of Quality Management Education in India in the 21<sup>st</sup> Century", International Journal of e-Education, e-Management and e-Learning, Vol. 2. No.1, February 2012.
- [2] Rahul Choudaha (2013), <http://www.dreducation.com/2013/08/data-statistics-india-student-college.html>, Posted on August 25, 2013, Retrieved date on: 25<sup>th</sup> August 2014
- [3] A. Senthil Karthick kumar, Zubair Rahman and Moses Daniel. (2014). "Is E-Learning a Positive Raindrop of Cloud: A Literature Review", International Journal on Advances in Science and Technology, ISSN: 2348-5426, PP 29-35
- [4] Source Collected from <http://www.internetlivestats.com/internet-users/india/> , Retrieved date on: 26<sup>th</sup> August 2014.
- [5] Klee Banks, <http://www.masterstudies.com/news/Distance-Learning-Global-Trends-and-Options-323/> Posted on July 2013 and Retrieved date on: 28<sup>th</sup> August 2014
- [6] Nickolas, Mark (2003). "A theory of E-Learning".
- [7] Wagner, J., Nebojme se eLearningu, Ceska skola, 2005



- [8] Ana Loureiro, Ines Messias, Maria Barbas (2012): Embracing Web 2.0 & 3.0 tools to support lifelong learning-let learners connect, *Procedia-Social and Behavioral Science*, 46(2012), 532-537.
- [9] Siemens, G(2004), *Connectivism: A Learning Theory for the Digital Age*, Retrieved from <http://www.elearnspace.org/Articles/Connectivism.htm>
- [10] Maneschijin, M.(2005). *The e-learning dome: A comprehensive e-learning environment development mode*. (Unpublished Master's thesis). University of South Africa, South Africa. Page. 1.
- [11] Salem alkhalf, Steve Drew, Thamer Alhussain (2012): *Assessing the impact of e-learning system on learners: a survey study in the KSA*. *Procedia-Social and Behavioral Science* 47(2012). 98-104.
- [12] Castro, M., Lopez-Rey, A., Perez-Molina, C.M., Colmenar, A., Mora, C., Yeves, F., Carpio, J., Peire, J.& Daniel, J.A. (2001). *Examples of distance learning projects in European community*. *IEEE Transaction on Education*, 44(4), 406-411.
- [13] Harper, K.C., Chen, K. and Yen, D.C(2004), *Distance Learning, Virtual Classrooms, and teaching pedagogy in the internet environment technology in society*, 26, 585-598.
- [14] Lever. Duffy, J., McDonald, J., & Mizell, A. (2003), *Teaching and learning with technology*, Boston: Allyn & Bacon.
- [15] Saba, F. (2003): *Distance Education Theory, Methodology and Epistemology: A Pragmatic Paradigm*, In M. Moore and W. Anderson (Eds.) *Handbook of Distance Education*, (P. 3-20). Mahwah, NJ: Lawrence Erlbaum.
- [16] Sirin Karadeniz (2009): *flexible design for the future of distance learning*, *Procedia-Social and Behavioral Science* 1(2009), 358-363.
- [17] Vania R.Ulbricht, Dr. Tarcisio Vanzin, Dr. Marilia Amaral, Dr. VilmaVilarouco, Dr. Silvia Regina, P.de Quevedo, MSc, Luis Augusto Machado Moretto, MSc. Angela R. B. Flores, MSc. (2012): *A tool to facilitate including accessible content in Moodle to the person with visual impairment*, *Procedia Computer Science* 14(2012). 138-147.
- [18] Brown, T.H (2005). *Towards a model for m-learning in Africa*. *International Journal of Elearning*, 4(3): 299-316.
- [19] Shabnam Bidarian, Soheila Bidarian, Amirhosein Mohammad Davoudi (2011): *A Model for application of ICT in the process of teaching and learning*. *Procedia - Social and Behavioral Science* 29(2011). 1032-1041.
- [20] Wang, Q., & Woo, H.L. (2007). *Systematic Planning for ICT Integration in Topic Learning*. *Educational Technology & Society*, 10(1). 148-156.
- [21] Morgan Keegan, *E-learning Investment Reports E-learning: The Engine of the Knowledge Economy*, 2001.
- [22] Sanjay Rajpal, Sanjay singh, Awadesh Bhardwaj 2008: *E-Learning Revolution: status of Educational Programs in India*, *Proceedings of International Multi conference of Engineers and Computer Scientists 2008 Vol I, IMECS 2008*, ISBN:978-988-98671-8-8
- [23] Antonio Garrido and Lluvia Morales (2014). "E-Learning and Intelligent Planning: Improving Content Personalization", *IEEE Revista IberoAmericana De Tecnologias Aprendizaje*, Vol 9, No 1, February 2014.

- [24] Iman Akour, Khaled Alshare, Donald Miller & Musa Dwairi (2006): An Exploratory Analysis of Culture, Perceived Ease of Use, Perceived Usefulness, and Internet Acceptance: The Case of Jordan, *Journal of Internet Commerce*. 5(3), 83-108.
- [25] Madeen, A. Ford, N. Miller, D. & Levy, P. (2005): Using the Internet in teaching: The view of practitioners (A Survey of the Views of Secondary School teachers in Sheffield, UK). *British Journal of Technology*, 36(2). 255-280.
- [26] Mustafa Cancer, Ilknur Yuksel, Ilknur KECIK (2013): A new trend in teacher education: A web-enhanced methodology course, *Procedia –Social and Behavioral Sciences* 70(2013), 1831-1838.
- [27] Liu Rui, Deng Maode. (2012): A Research on E-learning Resources Construction Based on Semantic Web. *Physics Procedia*, 25(2012). 1715-1719.
- [28] Bates, A. W. (1997). *Restructuring the University for Technological Change*, Paper presented at *What Kind of University?* 18 - 20 June, the Carnegie Foundation for the Advancement of Teaching, London, England. Retrieved March 26, 2006, from <http://bates.cstudies.ubc.ca/carnegie/carnegie.html>
- [29] <http://elearningindustry.com/top-10-e-learning-statistics-for-2014-you-need-to-know> Accessed on 11.11.2013
- [30] <http://www.u18.edu.in/u18-mission-&-vision.php> Retrieved date on: 28th August 2014
- [31] <http://edtechreview.in/data-statistics/4-distance-learning-for-higher-education-stats> Date posted on : 20th October 2012 and Retrieved on 28th August 2014
- [32] <http://rajeshthambala.blogspot.in/2013/04/the-future-of-e-learning.html> Date Posted on: 25th April 2013 Retrieved on 28th August 2014.
- [33] <http://www.financialexpress.com/news/25--of-Indian-students-covered-by-distance-education--Study/945204> Posted on May 4th 2012 Retrieved on 28th August 2014
- [34] <http://www.nityo.com/blog/?p=72> Retrieved date on 28<sup>th</sup> August 2014.
- [35] A. Assareh, M. Hosseini Bidokht 2011: Barriers to e-teaching and e-learning. *Procedia Computer Science* 3(2011). 791-795.
- [36] Noa Aharony, Jenny Bronstein (2013). A Delphi Investigation into the Future of E-Learning, *Procedia-Social and Behavioral Sciences* 83(2013). 911-914.
- [37] Rodica Pamfilie, Bogdan Onete, Irina Maioreescu, Doru Plesea (2012): E-learning as an alternative Solution for Sustainable lifelong education, *Procedia- Social and Behavioral Sciences*, 46(2012) 4026-4030.
- [38] Rodica Pamfilie, Bogdan Onete, Irina Maioreescu, Doru Plesea (2008): Quality in E-learning Special Issue of Quality- Access to Success, 92, 46-51.
- [39] Hurst, F. (2001), the death of distance learning? *Educause Quarterly*, 24(3), 58-60.