Romanian experiences in lifelong learning process and e-learning

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Abstract—**This paper generally presents the Romanian experiences in lifelong learning process and e-learning, and particularly the University of Craiova experiences in lifelong learning and e-learning. The new regulations about lifelong learning in Romania stipulated by 2011 Romanian Education Law are presented too. The paper brings forward the benefits of e-learning and of learning through competition obtained by authors' faculty.**

Keywords-lifelong learning; e-learning; adaptive educational hypermedia systems

I. INTRODUCTION

The universal right to education for every child, youth and adult is the fundamental principle. The general objective of the Lifelong Learning Programme is to contribute through lifelong learning to the development of the Community (EU) as an advanced knowledge-based society, with sustainable economic development, more and better jobs and greater social cohesion, while ensuring good protection of the environment for future generations. In particular, it aims to foster interchange, cooperation and mobility between education and training systems within the Community so that they become a world quality reference [1].

The new Community programme - Lifelong Learning Programme (LLP) – continues former Socrates and Leonardo da Vinci programmes. The period of deployment of the programme is from 2007 to 2013, and the budget total will be of 6,970 million euros. The programme has been approved by European Parliament on 15 November 2006 and has been published in the Official Gazette of the European Union on 24 November. It came into force on 14 December 2006. Erasmus programme for higher education institutions and Leonardo programme for vocational training, have kept their names and have became sectoral programmes of the LLP, which includes eLearning programmes, Europass initiative and other actions in the field of education and vocational training.

Components of the LLP are the following [2]:

- 4 sectoral programmes: Comenius (secondary education), Erasmus (higher education), Leonardo da Vinci (vocational training), Grundtvig (adult education).

- Transversal programme: the development of policies in the field of education and vocational training (including Europass portfolio), learning foreign languages, using new technologies of information and communication in education, dissemination and valorization.

- Jean Monnet programme (designed to support activities related to the European integration and the European institutions and organizations in the field of education and training)

The European Employment Strategy sets as target: in European Union the average rate for participation in lifelong learning to be at least 12.5 % of the adult population in employment age (age 24-64 years).

Adult learning counts more than ever in the era of globalization characterised by rapid change, integration and technological advances. Learning empowers adults by giving them the knowledge and skills to better their lives. But it also benefits their families, communities and societies. Adult education plays an influential role in poverty reduction, improving health and nutrition, and promoting sustainable environmental practices [4].

In 1976, the UNESCO General Conference approved the *Nairobi Recommendation on the Development of Adult Education* which enshrined governments' commitment to promote adult education as an integral part of the educational system within a lifelong learning perspective.

Lifelong learning objectives are integrated in the most important Romanian strategic documents, such as Romania's National Development Plan 2007-2013 (NDP). Romanian operational programmes for human resources development and strategies for national employment and for continuing vocational education are informed by lifelong learning [3].

It's required a change of mentality in what concerns the vocational training, that means increasing the level of awareness with respect to the importance of lifelong learning, the degree of motivation for broadening knowledge and developing skills.

This paper generally presents the Romanian experiences in lifelong learning process and e-learning and particularly the University of Craiova experiences in lifelong learning and e-learning. The new regulations about LLL in Romania stipulated by 2011 Romanian Education Law are presented too. The paper brings forward the benefits of e-learning and of learning through competition obtained by authors' faculty.

II. ROMANIAN EXPERIENCES IN LIFELONG LEARNING PROCESS AND E-LEARNING

Educational systems and vocational training are in the middle of changing and transition to the economy and knowledge-based society and therefore it is necessary to adapt them continuously. As a priority of the European Employment Strategy, greater investment in human capital and lifelong learning involves:

- ambitious policies for raising human capital,

- shared costs and responsibilities between public authorities, companies and individuals,

- reduce school abandonment and better training in order to increase access to continuing training,

- develop innovative methods of learning and training (using ICT).

Romania has adopted the European Employment Strategy, the revised policy of employment is consistent with the objectives and guidelines of this strategy. The current situation shows that Romania has made progress in revamping the continuing training system. One of the strategic actions to ensure the necessary skilled labor force/ skills for companies is to develop policies on lifelong learning in conjunction with labor market developments, through wide consultation of social partners, businesses, other institutions / organizations involved in the system.

In this way, the short and medium term strategy for continuing vocational training 2005-2010, approved by GD 875/2005, aims to develop a structured professional training system, transparent and flexible, with adequate funding and a stronger involvement of social partners to ensure increased employability, adaptability and mobility of the workforce and to meet the companies needs for skilled labor force, taking into account the future economic restructuring and alignment to the European market.

The strategy, implemented in line with the Government Programme 2005-2008, which provides as the major objective of education policy and training the investment in human capital as the most long term profitable, has set a target for Romania an average level of participation in lifelong learning of 7% until 2010, for the adult population (age group of 25-64 years).

The document envisages the Lisbon strategic objective. In this context, lifelong learning must be approached as a necessity imposed by a transition to an economy and a knowledge-based society.

However, Romania is facing a number of challenges in the implementation of European strategies, as for example:

- The existence of a historical delay with regard to the provisions of the Lisbon Strategy, followed by the insufficient development of a lifelong learning culture;

- The lack of a systemic and coherent debate involving ministries, public institutions, civil society and businesses in the development, implementation and monitoring of lifelong learning policies;

- The lack of global approaches in lifelong learning policies, which should consider the entire path of an individual learning and training and a unique vision, both preschool education, compulsory education and initial training, and the continuing adult education and training;

- Lack of correspondence between the priorities of the education policy documents and the financial resources allotted to their attainment;

- Insufficient commitment of the responsible actors in the development and implementation of human resources development policies.

Countries differ widely in the degree of state responsibility for LLL. Romania = country stating more than one ministry involved in adult education; country mentioning decentralization in adult learning and education; country with general laws or policies related to adult learning and education that were developed since 1997 (including strategies, plans, acts, decrees, papers).

Romania has not finished the development of a national integrated strategy for lifelong learning yet. Nevertheless, the decision-makers' and experts' interest in the development of a coherent national lifelong learning strategy has considerably increased since 1997. In consequence, lifelong learning principles have been included as priorities in education, continuing training and employment policy documents. The National Development Plan 2007-2013 (NDP) and the Sectoral Operational Programme for the Development of Human Resources (SOPDHR) are the main Romanian policy documents for attaining the benchmarks set in the Lisbon Agenda for education, training and employment. Some lifelong learning objectives are also explicitly found in sectoral strategic documents, such as: The National Employment Strategy 2004-2010, The Short- and Medium-Term Strategy of Continuing Vocational Training 2005-2010, The Ministry of Education and Research Strategic Guidelines for 2006-2008.

The current concerns about lifelong learning in Romania focus on completing a national integrated and coherent strategy for lifelong learning, a legitimate one, assumed by all stakeholders, including the social partners. In this context, following an initiative of the Ministry of Education and Research, a work group was set up, which included representatives of all ministries and social partners concerned and was responsible for coordinating the consultation activities conducted with a view to develop a national integrated and coherent strategy for lifelong learning. So far, the work group has already drawn up a draft of national lifelong learning strategy. Debates and inter-institutional consultations were run to complete the strategy.

Concerning the legislative framework, there is a special chapter within the Law of Education no 84/1995 dedicated to the permanent education, and the Law no 133/2000 focuses on the organisation of the permanent education programmes through the educational institutions stipulating that these programmes have to ensure:

- compensatory education ("second chance" education);

- continuing vocational training;

- civic education;

- personal education for playing an active social role.

Nevertheless, the different aspects of adult education, excepting the continuing vocational training, are not subject of coherent strategies, policies and specific regulations. The legislative framework (laws, government ordinances, government decisions, and orders of different ministers) regarding the continuing vocational training (CVT), consists of:

- Government Ordinance no 129/2000 of adult vocational training, modified through the Law no 375/2002, which stipulates:

  a) the criteria and procedure of quality assurance of CVT programmes;

  b) the competences based training, assessment and certification;

  c) the assessment and recognition of the competences acquired within non-formal and informal learning contexts;

- Labour Code (Law no 53/2003) regulated the training within enterprises and stipulated the obligation of the companies to train the personnel every two years (every three years for SME);

- Law no 76/2002, modified through Law no 107/2004 and Law no 580/2004, of unemployment insurance system and stimulation of employment, stipulated the passive and active measure against unemployment;

- Other regulations concerning the training at sector level.

Also, in 2006, the Institute for Education Sciences (ISE) from Bucharest has published the first national official diagnosis on the state of the art of adult education from an LLL perspective, in a SWOT perspective.

There is no comprehensive strategy for LLL in Romania, but only efforts to implement the principles of LLL in the different components of the systems of education and training through new legislation or through amendments to the existent legislation: education law and laws referring to different cycles.

First Romanian regulation for organization of distance education in higher education institutions was Romanian Government Decree no. 1011/8.10.2001, and its accreditation is done by the Open Distance Learning Commission of the Ministry of Education, Research, Youth and Sport.

Romanian education institutions included new technologies (ICT) in their teaching methodology. The theory and practice of e-learning are continuously improving. Nowadays, most of the Romanian efforts in the area of e-learning are directed towards the educational use of ICT [12-14].

Many schools and universities offer online modules for their courses, online courses, or even degrees online; many companies use e-learning in their training programs; 58% universities use e-learning platforms [11].

Romanian e-learning platforms: AeL (Advanced eLearning, Educational Assistant for High-Schools, http://portal.edu.ro), Academia Online (http://www.academiaonline.ro), TIMSOFT ELEARNING (http://www.timsoft.ro) etc.

eLearning.Romania is an initiative of several civil society institutions (TEHNE – Centre for Innovation and Development in Education; ASTED – Association for Education Sciences, and the National Foundation for Community Development), developed in collaboration with two research centres in universities (University of Bucharest an University Politehnica of Bucharest) and with a national research institute in education (Institute for Education Sciences) [7]. 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.

The website www.elearning-forum.ro is a meeting arena for opinion leaders and e-learning stakeholders.

Romanian companies which offer e-learning platforms/ solutions are**:** Timsoft, Siveco, InsideMedia, Softwin, Expert Learning System, DotCom, Comsys, QCT Connect, Learning Systems, eLis - VIA Software, Dasa Business Center, Open Software SRL, Agata Training Center etc. [8-10].

E-learning Romanian projects (universities, schools, firms) are presented on the website http://www.timsoft.ro/ resurse.shtml [10].

III. 2011 ROMANIAN EDUCATION LAW

The Ministry of Education, Research, Youth and Sport (MERYS) has the overall responsibility for education in Romania, including LLL. More specific, MERYS coordinates, monitories and evaluates the educational and continuing training institutions and the programmes. Other ministries or central agencies are in charge with different areas/aspects of LLL. Some LLL activities are decentralized [2].

The new Law of Education (January 2011) presents the national strategy for long life learning and offers a view on the main issues of lifelong learning at the level of all components and educational sectors and vocational training by also considering the non-formal and informal context of education.

Lifelong learning is a right guaranteed by law (Art. 13, para. 1). Lifelong learning includes all activities undertaken by each person, starting with early education, in order to acquire knowledge, skill formation and development of significant skills in a personal, civic, social and / or occupational perspective (Art. 13, para. 2). Lifelong learning includes

primary education, secondary education, higher education, continuing education and adult training (Art. 328, para. 3).

Lifelong learning is done in formal, non-formal and informal learning contexts (Art. 330, para. 1). The law defines what formal, non-formal and informal learning is (Art. 330, para. 2, 3 and 4). Certification of knowledge and skills acquired in non-formal and informal contexts can be done by competent organisations (Art. 330, para. 5). The law defines the institutions in which learning is done in a non-formal or informal context (Art. 331, para. 1, 2 and 3). The State guarantees and supports, including financial, the access to continuing vocational education and training (Art. 333). Financing lifelong learning is accomplished through public and private funds on public-private partnership, but also by financing or co-financing from employers, nongovernmental organizations, through grants from the European programmes, through accounts of permanent education and by contribution of the beneficiaries (Art. 334).

The State shall exercise his powers in the field of lifelong learning through the Ministry of Education, Research, Youth and Sport, Parliament, Government, Ministry of Labour, Family and Social Protection, Ministry of Culture and National Heritage, Ministry of Health and the Ministry of Administration and of Home Affaires (Art. 335). Law defines the competences of the ministries listed above into the field of lifelong learning. The law also regulates the establishment of the National Qualifications Authority by reorganizing other existent institutions, establishing its functions. Articles 343 and 344 show the conditions in which community centers for lifelong learning can be established, who can do it and what are their responsibilities.

Terms relating to processes of identification, assessment and recognition of learning outcomes (learning outcomes, identify learning outcomes, results assessments, validation of learning, certification of results) are defined in Article 345.

Services of identification, assessment and recognition of learning outcomes can be offered by public or private institutions authorized to do so (Art. 346 para. 1). Initial and continuing vocational training programmes, assessment systems of learning outcomes in non-formal and informal contexts will ensure occupational mobility horizontally and vertically using the credit transfer system for vocational education and training (Art. 347 para. 1). Persons wishing to be assessed for recognition of professional skills obtained in other contexts than formal learning apply to an accredited assessment center for that occupation or qualification (Art. 348 para. 1). Depending on the assessment conducted, the accredited assessment center issues the following types of national recognition certificates: certificate of qualification, certificate of professional competence (Art. 348 para. 2). Other articles of the law refer to the portfolio of continuing education (Art. 349), the lifelong career counseling and guidance (Art. 350, 351, 352, 353, 354), the national system of continuing education quality (Art. 355), the 500 Euro deposit account for continuing education (Art. 356), the positions occupied by staff working in continuing education (Art. 357), the establishment of the National Science Museum (Art. 358), the elaboration of a set of statistical indicators for monitoring, analysis and prognosis of lifelong learning activities (Art. 359).

Given the new education law it can be said about the lack enough issues/regulations to ensure a clear lifelong learning process, which should be set by MERYS in a future methodology of law enforcement.

Also, in 2010, the Institute for Education Sciences (ISE) from Bucharest has published the first national official analysis on the implementation in Romania of long life learning Programme (Decision no 1720/2006/EC of the European Parliament and of the Council of 15 November 2006 establishing an action programme in the field of lifelong learning), 2007-2009, in a SWOT perspective [6].

IV.   UNIVERSITY OF CRAIOVA EXPERIENCES IN LLL AND E-LEARNING

Romania is a country with a solid tradition of lifelong learning, especially in adult education. The negotiations on EU membership and then the full membership from 1-st January 2007 accelerated the development of lifelong learning.

Many universities offer online modules for their courses, online courses, or even degrees online.

There is a database with 1707 courses for lifelong learning offered by 31 public universities [5]. Each Romanian public university developed a Centre for Resources, Documentation, Information and Services for Open Distance Learning. Romanian Companies which offer online courses are: Timsoft, Academia Online, Eurocor, CursuriOnline.ro, Cursuri-online.info, etc.

The University of Craiova offers excellent conditions of study to its 32000 students, in various fields embracing 120 specialisations. The Teaching Package includes 3 stages of academic studies (BA, MA, Ph.D) that are ensured by over 1000 teaching staff and high technological equipment. The institution organises bachelor, master, PhD. studies in the field of Electrical and Information Engineering. The university has a Department of Quality Management and a Department of Distance Education (distance education as a component of life long learning). There is a continuing education centre at the Faculty of Automation, Computers and Electronics.

University of Craiova organized the workshop entitled "Romanian experiences in Lifelong process" from 27.02. to 03.03.2010. The main goal of this workshop was to present the experience of Romanian universities in creating framework for lifelong learning process. The participants had opportunity to hear how Romanian universities in past decade increased their activities in lifelong learning process through several funding schemes offered by EU. The lectures and presentations were held by University of Craiova staff with great experience in lifelong learning process.

University of Craiova has experience in cooperation at local, regional, national and trans-national level. Some examples:

SOCRATES: collaborations with 53 universities, inclusive in the field of Electrical and Information Engineering.

PHARE projects: Transparency of Academic Qualifications as a Gateway for Professionals "Free Movement in Europe"; Creating an Observatory for Raising Awareness on the EU Social Inclusion Policy in the South-West Region of Romania.

TEMPUS projects: INCOT-New Course Information & Communication Technologies; CECEN-Continuing Education Centres Network in Oltenia Region; European Union Compatible Post Graduate Course in Project Management – EPROM; University Virtual Resource Center Based on a Distributed Learning Environment.

Romanian projects: Continuing Education Network in Information Technology and Microelectronics (EDIT); Multimedia Databases Content-Based Search Algorithms - Complexity Analysis; Educational Resources Sharing via Internet.

SOP HRD projects: TREPAN – Rethinking and consolidating the entrepreneurial culture by training and partnership development at trans-national level; STPVS – Technical secreteriat for employment and social inclusion in South-West Region of Romania.

Grundvig projects: KeyComKit - Key Competencies Kit for Facing Lifelong Learning; Intercultural Methods for Community Development.

In Romania (after admission in EU) the education in the field of EIE has to strategically align to European EIE programmes. From this point of view it is important to clarify whether new methods of delivery have comparable or even improved efficiency as compared to conventional methods, to test whether the efficiency of different methods, to observe potential trends in learning, to test different methods of delivery in practical situations, to test the success of on-line learning. For Romanian EIE education it is important to allow widening participation and diversity and to align with current global technological priorities.

As new member of EU for Romania it is important to enhance the employability of people by allowing them to learn and validate their knowledge all around their life and to recognise the traditional, non-traditional, lifelong-acquired competences in the various European countries and systems.

For the implementation of useful and performance learning system we have to provide educators with a repository of relevant pedagogic research resources, to provide a resource of on-line open-access modules in Electrical and Information Engineering, to undertake research into the efficacy of on-line resources as a method of learning.

E-learning is a very dynamic domain, in continuous growth, which refers to educational content or learning experiences delivered or mediated by means of digital technologies. The development of this domain is expected to lead to a growth in the quality of instruction, cost reductions and a more efficient implementation of distance and life-long learning. Today's e-learning is dominated by the Learning Management Systems (LMS), such as Blackboard, Moodle, ATutor or dotLRN; these represent integrated systems which offer support for a wide area of activities in the e-learning process. Thus teachers can use LMS for the creation of courses and test suites, for communicating with the students, for monitoring and evaluating their work. Students can learn, communicate and collaborate by means of LMS.

The problem is that LMS don't offer personalized services, all the students being given access to the same set of educational resources and tools, without taking into account the differences in knowledge level, interests, motivation and goals.

Adaptive educational hypermedia systems (AEHS) try to offer an alternative to the non-individualized approach, by providing various services adapted to the learner profile. The purpose of this adaptation is to maximize the subjective learner satisfaction, the learning speed (efficiency) and the assessment results (effectiveness).

Identifying the learner characteristics represents the first stage of adaptation, called learner modeling. Adaptation decision making is the second stage, in which particular adaptation actions are taken, based on the information gathered in the first stage. The process is schematically illustrated in Fig.1.
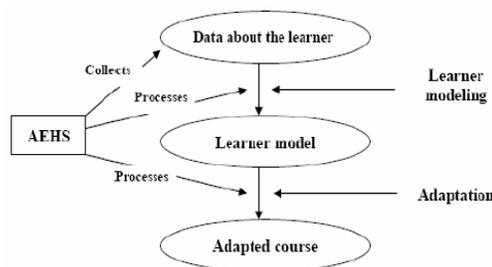

Figure 1. Adaptation process in adaptive educational hypermedia systems

Based on the methods and techniques proposed for modeling and adaptation, we designed and implemented such an e-learning platform, called WELSA (**W**eb-based **E**ducational system with **L**earning **S**tyle **A**daptation), which includes several functionalities:

- a course player for the students, enhanced with learner tracking capabilities and an adaptation component

- an analysis tool, used for identifying students' learning preferences

- a course editor for the teachers, to help them author courses in the required format.

Our intention was to offer a basis for an integrative learning style model, by gathering characteristics from the main learning styles proposed in the literature, which meet three conditions: i) have a significant influence on the learning process (according to the educational psychology literature); ii) can be used for adaptivity purposes in an educational hypermedia system (i.e. the implications they have for pedagogy can be put into practice in a technology enhanced environment); iii) can be identified from student observable behavior in an educational hypermedia system.

We thus introduced a Unified Learning Style Model (ULSM), which integrates characteristics related to: perception modality, way of processing and organizing information as well as motivational and social aspects. The model was created based on a systematic examination of the constructs that appear in the main learning style models and their definitions. The model presents several advantages: i) it solves the problems related to the multitude of learning style models, the concept overlapping and the correlations between learning style dimensions; ii) it provides a feature-based modeling approach, which is simpler and more accurate than the traditional stereotype-based modeling approach; iii) in turn, this offers the possibility of finer grained and more effective adaptation actions [15].

The effectiveness of the adaptation process was confirmed by means of an experimental study, involving 64 students who were split in two groups: one which was provided with a matched version of the course (further referred to as "matched group") and one which was provided with a mismatched version of the course (further referred to as "mismatched group"), with respect to the students' learning preferences. As test course we implemented another module in the area of Artificial Intelligence, dealing with constraint satisfaction problems. Since we used the same subjects for the adaptive and non-adaptive sessions we were able to perform both an intra-subject and an inter-subject comparability study. In order to evaluate the adaptation process, we used two kinds of data: i) the behavior of the students in WELSA, as monitored and logged by the system; ii) the students' opinion about the adapted course, as stated in the dedicated surveys.

The results obtained are very encouraging: the matched adaptation approach greatly increased the efficiency of the learning process, with a significantly lower amount of time needed for studying and a lower number of randomly accessed resources (lower level of disorientation). The effectiveness of the matched adaptation and its suitability for addressing students' real needs are also reflected in the significantly higher time spent on recommended versus not recommended resources, as well the higher number of accesses of those recommended learning objects. Finally, the recommended navigation actions were followed to a larger extent than the not recommended ones.
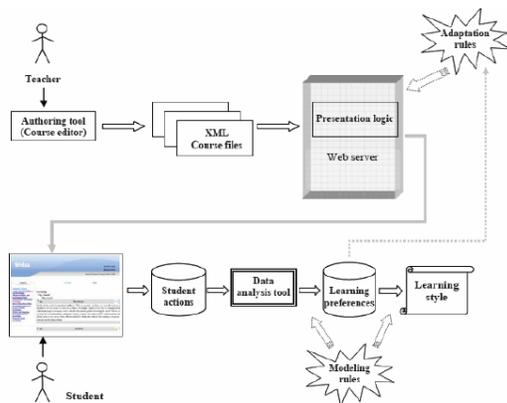

Figure 2. Overall WELSA architecture

As far as students' subjective evaluation of the system is concerned, the greatest improvements between the adaptive and non-adaptive sessions were perceived by the students in the matched learning group in terms of enjoyment (65.63%), overall satisfaction (65.63%), motivation (56.25%) and learning effort (56.25%). At the same time, students in the mismatched learning group reported lower levels of overall satisfaction (71.87%), enjoyment (59.38%), motivation (59.38%), as well as an increase in the learning effort (62.5%).

As far as the implementation is concerned, Java-based and XML technologies are employed for all WELSA components. Apache Tomcat 6.0 is used as HTTP web server and servlet container and MySQL 5.0 is used as DBMS [15].

An informal context learning through competitions was organized by authors with pupils from secondary schools to attract them to technical higher education. Two consecutive years (2008, 2009) a robotics competition using Lego Mindstorms kits was organized by the authors for secondary schools. In the first year (2008) it was organized a competition only for two secondary schools, but in the second year (2009) the competition had two phases. First phase was organized for each secondary school (six schools). Six teams from 3 pupils participated to this first phase of competition. The winner team of each school participated in the second phase.

Figure 3. Lego Mindstorms competition

Many of pupils participated enthusiastic and later we found them as students of our faculty to Robotics specialization.

Another informal context learning through competition means Romanian Students Mechatronics Competition where our students from Mechatronics and Robotics specialization participated in 2010. The competition had two tests, one about programming of a Programmable Logic Controller in order to control a mechatronics station and another test about mobile robots. The test with mobile robots had three sub-tests where the tasks were to find a line, follow a line and to navigate through a labyrinth.

Figure 4.   Robotics competition

The faculty team had good results and won the third prize of competition.

V.   CONCLUSION

In the case of Romania, the lack of a national strategy for lifelong learning is, to a certain degree, compensated by the significant number of regional or local initiatives coming from education providers, NGOs or the business sector. Although these initiatives exert a bottom-up pressure towards policy change, the lack of specific budgetary headings for lifelong learning in the national budget presents a major challenge to sustainability. Not only the future implementation of an activity plan connected with the national strategy, but also the sustainable cooperation between actors coming from different sectors remains problematic.

Another visible effect of the lack of a solid lifelong learning culture in Romania is the fact that the competition between the providers of education on the market is mostly non-cooperative and excludes collective efforts in order to achieve common goals. In this case, competition constitutes a bad, not profitable attitude. The challenge here is to develop cooperative attitudes and behaviors, in order to develop win-win partnerships for change.

In Romania, LLP is known in education and training community in large or very large extent, through sectoral programmes, such as: Leonardo da Vinci and Erasmus are well known, Grundtvig, Study Visits and Europass are quite common, less known are Euryidice and European Label.

Moving towards a knowledge-based society requires investment in human resources development in order to encourage employees to acquire new skills and accept occupational mobility. At the same time, it is important to promote training quality and to ensure its relevance in relation to the skills, knowledge and individual needs.

The accumulation of knowledge and skills helps the improvement of labor market position, while at the same time increases productivity. Rapid changes in all areas result in a more dynamic range of new skills needs. Investing in training benefits both the individual and the society.

The problem of continuing training is important to support workforce transformation, being the main instrument through which it can adapt to new requirements, thus facilitating the mobility between different sectors.

Development and implementation of appropriate continuing training programmes of workforce will help prevent skilled labor force/competences shortages for specific areas and related occupations.

The development of professional training can not be conceived without the partnerships built with the contribution of all the factors that can influence the system, especially the social partners and the State and its regulatory authorities, professional associations, training providers, the civil society etc.

It requires more involvement of social partners in determining the need for labor force market skills, so that the economy would have timely appropriately qualified human resources.

In this respect, it is necessary to adjust the policy to ensure the mobilization of all resources necessary for continuing vocational training at all levels. They should encourage social dialogue at national, regional, local and sectoral level in order to have the participation of all involved stakeholders to develop a flexible and transparent system of continuing training, to ensure equal opportunities of access and socio-professional integration.

REFERENCES

[1] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:327: 0045:0068:EN:PDF

[2] http://www.edu.ro

[3] http://www.llp-ro.ro

[4] http://www.cnfpa.ro

[5] http://www.cnfis.ro/ed_perm

[6] http://www.ise.ro

[7] http://www.elearning.ro

[8] http://www.1educat.ro/elearning

[9] http://www.tehne.ro

[10] http://www.timsoft.ro

[11] Crahmaliuc, Anca. "58% dintre universitatile din Romania utilizeaza solutii de eLearning". Elearning.Romania, 2010-08-30. București: TEHNE- Centrul pentru Dezvoltare și Inovare în Educație. http://www.elearning.ro.

[12] V. Posea, D. Mihaila, S. Trausan-Matu, V. Cristea, and Al. Gartner, "Evaluation of Virtual Learning Environments Using Logs and Social Networks", E. Tomadaki and P. Scott (Eds.): EC-TEL 2006 Workshops, pp. 362-368, 2006.

[13] Trausan-Matu, S., Cristea, V., Udrea, O. (eds.): Intelligent e-Learning (in Romanian). PolitehnicaPress, Bucuresti (2005).

[14] Olimpius Istrate, "eLearning in Romania: the State of the Art", eLearning Papers, www.elearningpapers.eu, no. 5, 2007, ISSN 1887-1542.

[15] Elvira Popescu, Dynamic Adaptive Hypermedia Systems for e-learning, PhD Thesis, University of Craiova, 2008.