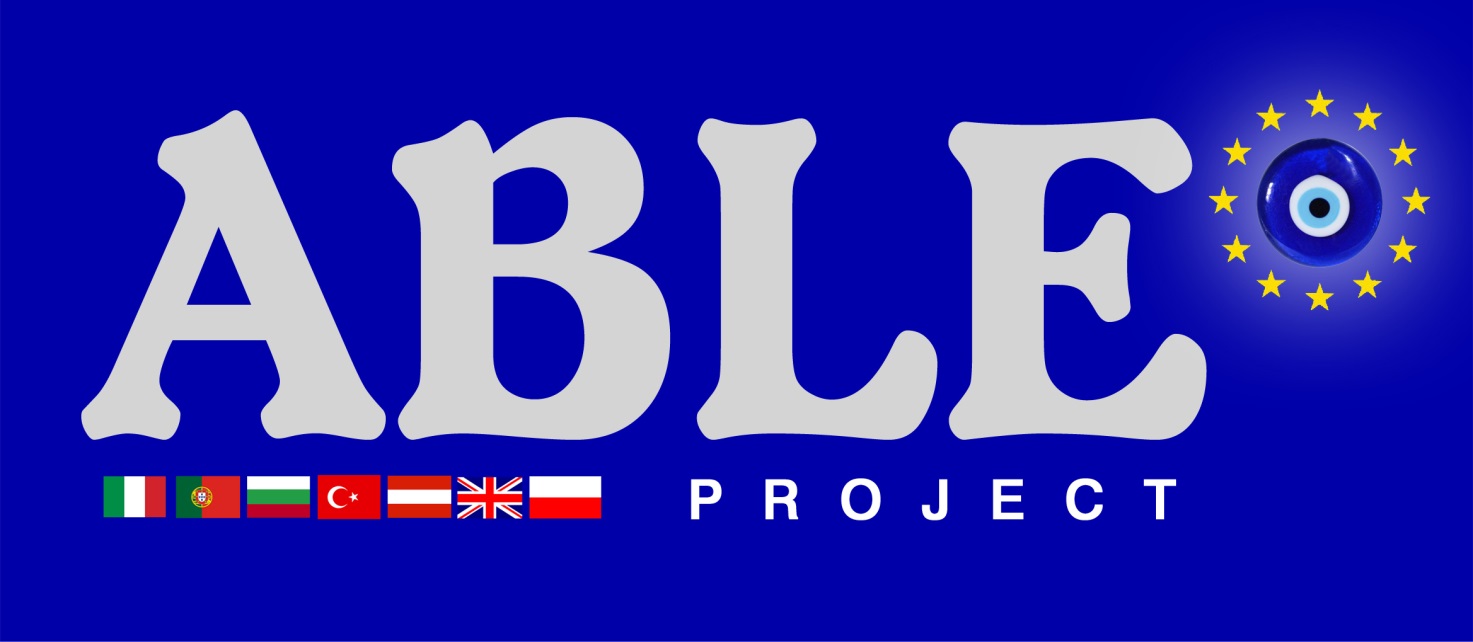
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**ABLE**

**Activity Based Learning and Entertainment:**

**Lifelong Learning Challenges in the Digital Age**

**2011-1-TR1-LEO04-24311 1**

**Best Practice in E-Learning and M-Learning by Practioners from Around Europe**

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| 1.0 ABOUT THE ABLE PROJECT This project partnership aimed to share knowledge and good practises in the field of the most modern and effective ways of teaching/learning with using innovative IT and multimedia technologies focusing on e-learning, m-learning, gaming and simulation. |  | obrazek1 |

|  |  |  |
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| obr2 |  | The project targeted young generation that is familiar with IT and new technologies but lacking the knowledge of how to use them in their studies and professional lives; highly qualified professionals, raised in the pre-digital age and who need to adapt to the latest technologies; disadvantaged people perceiving a chance for social inclusion in using and implementing new technologies to support their professional life and educational institutions; Moreover, IT tool developers will also contribute by providing guidelines based on study visits and brainstorming sessions. |

|  |  |  |
| --- | --- | --- |
| The partnership organized transnational meetings such as seminars and workshops focusing on different thematic areas of new technologies in Vocational Education and Training (VET). The project aims to promote e-learning, re-viewing the traditional educational models for digital generation workforce by incorporating entertaining ICT tools into VET. It encourages trainers and educators to review  teaching and training methods by switching focus from traditional to innovative methods as well as expanding from e-learning to m-learning, gaming and simulation. Thanks to the multinational aspect of the partnership each participant had the opportunity to discover what is being done in different European countries on this subject as they exchanged their experiences and ideas, giving them the opportunity to experience new potential ways of distributing educational content. This report provides evidence from Partner countries in Italy, Turkey, Poland, Austria, Portugal, Bulgaria and UK. Details of each participatin institution can be found in Appendix A. |  | obr3 |

# 2.0 THE USAGE OF E-LEARNING IN VOCATIONAL EDUCATION AND TRAINING (VET)

Even though there are some major similarities between all countries when it comes to the usage of E- Learning in VET, there are some significant differences that deserve attention. To that end there are 10 major areas of interest:

1. The history and development of e-learning in the country
2. How prevalent is online learning in the country
3. The online learning platforms used in the country
4. Which universities use e-learning in adition to face-to-face learning
5. Virtual Universities that provide certificates
6. Hinderences to the usage of e-learning
7. Is E-learning economical or not
8. Different institutions that use e-learning
9. Efforts to promote e-learning in the country
10. Pros and Cons of e-learning

## 2.1 The History And Development Of E-Learning

Most countries started to discover the value of e-learning and distance education in the 1990's, however there were three of them that started a bit earlier. The first one was Turkey, which started in the 1930's with correspondence courses, courses via letter. Then, in the 1960's, three countries, Turkey and UK opened their own Open Universities, while Portugal inaugured the “Teleschool”. The classes of these first distance universities/school were held through videotapes, and letters as well. The Portuguese Open University project only started in the 1970's. Observing the reports from other partners, Bulgaria, Austria and Poland, we can see that distance learning only had it's origin and “boom” in the 1990's. In Bulgaria, the PHARE program was used to finance the construction of four distance learning centers in that country; according to the Austrian report the first observable expansion in the usage of e-learning was from 1997 to 2008, after that, with the recession that upward trend was stopped the Polish Open University was established in 1991 and the Polish Virtual University on 2002. It is noticeable from the practitioners’ point of view and those studying educational pedagogies that in the 2000's a really big internet and e-learning “boom” occurred, making it a viable way of education (Aragon, S.R. 2003). This gave rise to the exploration of the idea of an online community, which supported learning in a virtual classroom. From this a Community of Inquiry Framework was devised to support the learning cycle for online students (Arbaugh, J.B., Cleveland-Innes, M., Diaz, S., Garrison, D.R., Ice, P., Richardson, J.C., Shea, P. & Swan,, K. 2007).

## 2.2 How Prevalent Is Online Education

In most, but not all countries, it is becoming more and more a popular way of learning, even though not as much as face-to-face learning. In Bulgaria, Poland, Turkey, UK, Portugal and Italy we can see that, even though it's not the primary choice of education, it's still a quite popular option. In the UK report we can see that out of 2655 courses, 1285 are e-learning courses, or at least b-learning ones. In the Portugal there are tens of thousands of students via Open University, and in the case of Turkey, it is getting more and more prevelent in the private sector, government and universities. However it is Poland where it is most popular, where online learning is used in more than 90% of Medium and Large-sized companies. In Italy, it has many people engaing with online education despite the poor funding by the EU, only 10% of the funds are directed to online education. Contrary to the other countries, in Austria, despite the initial “boom”, it is now regarded as too time-consuming and the uneasiness of the teachers regarding this kind of education, makes it a non-popular method of teaching/learning.

## 2.3 Online Learning Platforms Used

In most countries, with the exception of Italy's, Moodle is used as an Learning Management System (LMS) or Virtual Learning Environment (VLE). Some countries use it in a more regular basis, while others use it as a secondary platform. As well as this LMS Austria uses Class Server, Eduplone, eISITOS, ILIAS, PHPNuke, Schooltalk, Typo3 and WeLearn; Poland also uses Claroline; Portugal also uses Blackboard and Dokeos; and in the UK approximately 2/3 of all University use Blackboard as their primary Virtual Learning Environment, and Moodle as a second LMS.

## 2.4 Which Universities Use E-Learning In Addition To Face-To-Face Learning

We can observe in all the reports is that all, or almost all, universities have e-learning or b-learning. In the UK we have De Montfort University, University of Derby, Edinburgh Napier University, University of Essex, University of Leicester, University of Liverpool, Staffordshire University, Sheffield Hallam University, Birmingham University, University of Bradford, Royal Agricultural College, University of Sunderland, University of Wales and Anglia Ruskin University. In Turkey there are Ahmet Yesevi Üniversitesi, Anadolu Üniversitesi, Gazi Üniversitesi, Sakarya Üniversitesi, Çukurova Üniversitesi, Ankara Üniversitesi. According to Poland's report most universities have at least blended-learning method. In Innsbruck University there is online learning present as well, according to the Austrian report. In Bulgaria there is e-learning in Sofia University, University for National World Economy, New Bulgarian University, Varna and Burgas Free Universities, Veliko Tarnovo and Shumen Universities, Academy of Economics and the University of Russe. In the Italian report it says that the Politechnic of Milan, University of Florence, Telematics University Guglielmo Marconi, University management, electronic audio-visual TEL.MA, Telematics and University-Campus, Pegaso Telematic University, International Telematic University, Leonardo da Vinci University, University electronic Giustino Fortunato, University of Nicholas of Cusa, International Telematic University Unitel, Telematic University Universitas Mercatorum promoted by the Italian Chambers of Commerce and Non-state Telematics University "Italian University Line" all use some method of online education. And in Portugal all state-run universities have e-learning or b-learning methods as well as private ones.

## 2.5 Virtual Universities That Provide Certification On E-Learning

There are 11 Virtual Universities in Italy, 2 in Poland – Polish Open University and the Polish Virtual University -, and in Turkey there is the Open University, although integrated in Anadolu University. In Portugal and in the UK there is the Open University as well. In Bulgaria there is the “Bulgarian Virtual University” which is actually a website with links to other universities' subjects. In all there are a substantial number of open or virtual universities across Europe, who provide certificated awards online by e-learning or blended learning (Peters, O. 2008). These often have their routes in correspondence courses, which served a similar section of society in a different era (Keairns. K, 2013).

## 2.6 Hindrances to the Usage of E-Learning

There were several hindrances highlighted by practitioners, some of them were common to all, while others were experienced in particular cases. In Austria it is noted that the organizational problems as well as the learning contents availability is a problem. Due to the high-maintenance of the learning method, students have to pay for their materials.

In Turkey having suitable hardware and software for the proposed system cannot be provided with acceptable economical costs, combined with the poor connections speed in the rural areas and the fact that distance and online learning is deemed inferior to face-to-face learning.

In Poland the main hindrances are the financial investment and the fact that it takes up to four times longer to prepare online classes.

In the UK the willingness of institutions to fully commit to the development of wholly online courses, that are not a rehash of on campus courses, but are designed specifically for online delivery is the greatest hindrance. However this attitude is changing with the rise of MOOCs.

Again, financial issues are pointed out in Bulgaria. There is no money to invest in hardware, software and trained professionals.

Finally in the Portugal, we see that the main hindrances are the digital illiteracy on older people, the high-maintenance technology needed to run a proper e-learning course. The internet is seen as a distraction on younger people with applications such as Facebook, Twitter which gives rise to the belief that distance learning is deemed inferior to face-to-face learning.

Most of these observations have borne out those made by (Allen I. Elaine and Seaman J 2007) which found the following from their survey

* Academic leaders cite the need for more discipline on the part of online students as

the most critical barrier, matching the results of last year’s survey.

* Faculty acceptance of online instruction remains a key issue. Those institutions most engaged in online do not believe it is a concern for their own campus, but do see it as

a barrier to more wide-spread adoption of online education.

• Higher costs for online development and delivery are seen as barriers among those

who are planning online offerings, but not among those who have online offerings.

## 2.7 Is E-Learning Economical Or Not?

In UK, Bulgaria, Poland and Portugal it is believed that it is indeed cheaper than traditional education. However, as pointed out in the UK and Poland it is time-consuming and the subject material has to be designed specifically for a distance delivery. This involves reorganizing subjects and material. In Portugal, even though it's said that it is thought to be cheaper, there were no actual calculations done to support this belief. Many people have tried in the past to quantify the cost associated with distance learning and have produced formulas based on fix and variable cost, but the cost are very course and cohort size dependent.

## 2.8 Different Institutions That Use E-Learning

Naturally educational institutions, the Universities and colleges provide E-Learning. Other than Universities, there are plenty different institutions that use e-learning. In Portugal large companies like PT (Portugal Telecomunications) to smaller ones make use of online education to train their staff in addition to face-to-face education. But, perhaps the biggest user of online education in Portugal is the Navy, as their officers are at sea and need training. In Turkey apart from Universities, there are banks, private companies, Markets as well as some Governmental institutions, which utilize e-learning. In the UK distance education is primarily delivered by Private training companies for Lifelong learning or skills enhancing courses. As in the UK, the Bulgarian e-learning is primarily used by educational facilities such as universities, colleges and schools, but there are a small percentage of companies, as well as NGOs, that use it to train staff. Universities and NGO's are also the main online education users in Italy. In Austria there are not only Universities using this method of education but also VETs, SMEs, Primary schools, Grammar schools and Colleges. Lastly, in Poland mainly universities and colleges are using this online education, but there are also some training centres that offer courses in the form of e-learning and/or blended learning.

## 2.9 Efforts To Promote E-Learning

In Austria there have been several attempts and projects to promote e-learning in that country. It started with *eEurope 2005,* with a 70 million Euro financing to equip everything necessary to have a good e-learning basis. Later on it followed the projects *eEducation,* with the motto *“integration of new media into the general and vocational system with the objective of a systematic improvement of quality and enhanced access to education”, eLearning in notebook classes, eContent-initiative,* which was an initiative to produce and publish different contents for different subjects, *eLearning-Cluster, eScience, eTraining, eCulture, eAdministration* and *eLearning portal*. In Italy there have been several decrees by the Minister for Technological Innovation to spread e-learning activities in the Public Administration. Whereas in the UK the Higher Education Funding council for England (HEFCE) developed a 10-year strategy to integrate e-learning into higher education. The strategy is intended to enable all universities and colleges to make the best use of information and communications technologies in their learning and teaching. In the case of Turkey the Council of Higher Education has made some attempt to establish an independent virtual university in the country. Whilst in Portugal, with the broadcast of materials on the RTP2 Network, this was probably the biggest advance distance learning for that nation. Nowadays the efforts to promote e-learning are centred around offering the staff and teachers of a university workshops and explanations on how to e-teach, so they can give the example themselves and offer help to the students if needed. In Poland e-learning is promoted by universities and high schools, national and international projects that are growing in number and are funded by the European Social Fund. Finally in Bulgaria the Ministry of Education funded a national program for the development of ICT, which focuses on the purchase of equipment for schools and teacher training.

## 2.10 Pros And Cons Of E-Learning

### Pros:

- No time/money spent in locomotion from one place to another

- No expenses in terms of accomodation

- Studying at your own pace, no need to rush things

- Every student has the same opportunities and the same rate of participation

- Broadening of one's horizons by meeting different students from different parts of the country/world

- Helps the student gain responsability

- The alumni will develop their internet and computer skills unconsciously

- The students are able to learn while "on the go" - Mobile learning

- Different teaching methods give different knowledge

- It allows you to minimize the fear and shyness one can have in a traditional training group.

### Cons:

- Lack of motivation because the student "is just another one"

- Inability of time management by students with poor or no studying habits.

- Reduced feedback and the teacher may not be available on demand.

- Students may go unnoticed by the teachers

- Slow internet connections, bugs, technological handicaps.

- Internet distractions

- Digital illiteracy

- Identification of students (the task is performed by another person, not the student)

- Plagiarism

- Lack of personal contact

- Reviewing the correctness and suitability of the educational material continuously and making the necessary changes within a short time

- An e-learning student and teacher see their relationship as a professional talking to another professional, not student/tutor relationship, and for those who are used to this latter form of relationship it may take a while to change their mind-sets.

Through the arguments presented here, we are given the impression that there are more Cons than Pros, but when weighing everything, the Pros are much stronger arguments than Cons, and also, with proper preparation, these Cons can be overlooked and bypassed.



# 3.0 NEW TRENDS IN ICT AND ENTERTAINMENT BASE EDUCATION AND GAMING, SIMULATION AND M-LEARNING

## 3.1 Why Use Computer Games For Learning?

### Computer Games Engage

There are many reasons given as to why computer games are so engaging. They are seductive, they ‘use technology to represent reality or embody fantasy’( Becta. 2001). Rich visual and spatial aesthetics draw you into extravagant fantasy worlds that nevertheless seem very real on their own terms; these excite awe and also pleasure where environments have recognisable features.

‘Games are played to win or achieve a goal ... The key to motivation is winning while remaining challenged’. They motivate via fun, ‘part of the natural learning process in human development’, and instant, visual feedback” (Mitchell. A & Savill-Smith. C 2004).

This is true both of ‘mini-games’, where players achieve quick outcomes, and of complex games, such as fantasy or simulation games, which have goals and subgoals. Unlike many other game environments, complex computer games provide a complete, interactive virtual playing environment.

Ambience information creates an immersive experience, sustaining interest in the game. It is argued that good computer games are not just entertainment but incorporate as many as 36 important learning principles(Gee J P 2008). Taking as long as 100 hours to win, some are very difficult. They encourage the player to try different ways of learning and thinking, which can be experienced as both frustrating and life-enhancing.

### Three Reasons Why Computer (I.E. Digital) Games Engage

They are typically fast and more responsive, and provide a rich variety of graphic representations to generate a wide range of options, scenarios and rewards (James. B, Fletcher B.D, Wearn. N. 2013).

Computer games can be played against real people anywhere in the world or against the computer, which means that multiplayer games can be played at any time.

Computer games can deal with infinite amounts of content and afford differing levels of challenge, and they can be instantly updated, customised and modified by individual players, so that the player becomes part of the creative team.

## 3.2 New Trends in ICT And Entertainment Base Education And Gaming, Simulation And M- Learning

### Poland

In Poland we can observe raising popularity of smartphones and tablets. Majority of Poles have bought a smartphone or tablet in the last years. There are a lot of mobile operators who offer cheap smartphones and tablets. The prices is good also for learners and students and in many cases they can get a discount. It opens a wide perspective for m-learning.

e-Learning and m-Learning become more and more popular in Poland. At the moment e-Learning courses are a standard in most of universities and students have to finish some courses and pass some subjects in the form of e-learning. Despite that, this method of learning is still not very well developed.

According to the research made by Polish Open University (this is the university which offers courses implemented in the form of e-learning and m-learning), 73% of students estimate e-learning courses provided by their universities as non satisfactory. The problem is that according to the law, only 60% of courses in the university can be implemented in the form of distance learning (e-learning or m-learning).

### Turkey

Basic Education Program Phase I (1998-2003)

As ICT initiatives, the following activities were completed within Phase MNE created 3188 IT classrooms in 2802 elementary schools (K-8) and equipped them with computers, printers, scanners, TVs, videos, multimedia software and slides. All schools had the same number and type of IT tools, except for the number of computers.

* A total of 56,605 computers were distributed to 26,244 rural area elementary schools.
* 1630 laptop computers were supplied to 3000 primary education supervisors who were then trained on computer literacy, active learning, and teaching strategies.
* 25,000 elementary school teachers were trained on computer literacy in various in-service programs provided by the MNE. In addition, 15,928 elementary school teachers received advanced computer training by the contract firms who supplied hardware and software to those schools.
* 2308 computer coordinators were trained on using projectors and 18,517 schools were sent overhead projectors (MEB, 2004).
* Basic Education Program Phase II (2002- …. )

Upon implementation of Phase I, Turkey and the World Bank signed a loan agreement for Phase II on 26 July 2002. According to this agreement, the objectives in Phase I were expanded. Within Phase II, preschool education and special education programs were added to the general objectives; consequently, the following initiatives were added to the BEP:

* 1. Develop an educational web portal site and provide ICT equipment to approximately 3,000 more elementary
  2. education schools
  3. Provide educational materials to 4000 additional elementary schools
  4. Train more teachers, principals and supervisors
  5. Continue program implementaion support
  6. Continue program progress and evaluation activities.

**And now, after 2010;**

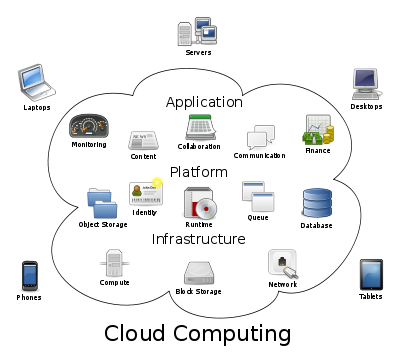
Starting the implementation of the Project *fatih* the dimension of the using ICT in classroom has changed;

* Teachers and students will have an opportunity to use computer simulations, games in the class. Lately hardware infrastructure is being completed by the government. This also includes the private schools.
* Hardware infrastructure works are being carried all over Turkey. Recently every high school in 17 provinces (also the districts of the provinces) have been equipped with the necessary tools. There are 81 provinces in Turkey.

### Italy

This involves various areas in Italy: from the simplification of the interface and the access to health services on-line, to home automation systems for domestic surveillance, from eco-friendly "data center" to the digitization of public services, to the infotainment.

Cloud computing is the use of computing resources (hardware and software) that are delivered as a service over a network (typically Internet). The name comes from the use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation.

[](http://en.wikipedia.org/w/index.php?title=File:Cloud_computing.svg&page=1)

There are many types of public cloud computing, for example:The business model, IT as a service (ITaaS), is used by in-house, enterprise IT organizations that offer any or all of the above services.

The Annual Report on the state of the video-recreational Italian Industry, by AESVI, Italian Videogame Developers Editors Association gives us an interesting view.

The Italian market of video games resists to the crisis, even if it loses shares and it has a turnover of over 1.1 billion euro, without considering games digitally distributed, which are not monitored.

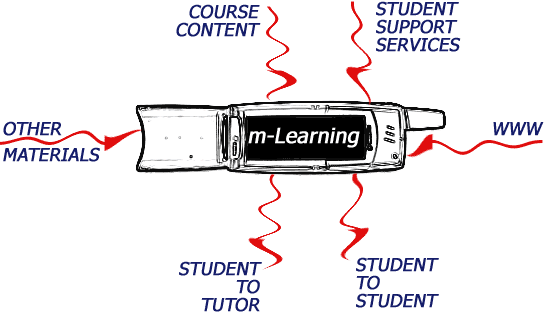
In 2010 this performance places Italy in fifth place in the ranking of European sales, behind Britain, France, Germany and Spain.

On the other hand, Italy has the better growth trends (actually the less negative) in Europe after Portugal: - 2.3% compared with, for example, at - 6.2% of the British people and - 7.2 % of French people.

Italians love console, in 11 million of families (43.5% of the total, it was 27.9% in 2006) in 2010 it has been sold 2.4 million, which is almost 5 console per minute.

### Austria

Wireless Virtual Learning Environment of Today



(Wireless virtual) Distance learning brought great benefits to society.

It freed up learners so that they could study at any time and in any place and in structures suited to their employment and family commitments.

Most of the goals that today characterise just-in-time learning, or life-long learning, were anticipated by distance learning:

* Training when it is needed
* Training at any time
* Training at any place
* Learner-centered content
* Avoidance of re-entry to work problems
* Training for taxpayers, and those fully occupied during university lectures and sessions at training centres
* The industrialisation of teaching and learning

Cloud Computing:

What does this mean for schools?

1. Teaching and learning platforms:

Servers can provide some or all software applications, operating systems, and Internet access, rather than having these installed and maintained on each platform separately. Servers deliver on demand, as needed by the school population, to the full spectrum of learning platforms and devices. For example, a single application might be shared by hundreds of students and teachers on notebooks, tablets, and desktops.

1. School IT:

Cloud computing allows for cost- and energy-efficient centralization of school infrastructures. It takes advantage of server capabilities to adjust allocation based on demand—all invisible to teachers and students. Remote management and maintenance can save time and increase security. For instance, an application or operating system served by the cloud can be upgraded once at the server level, rather than on each individual platform. Platform access can be restricted or denied in the event of a loss or theft.

1. Access:

Along with the greater control for IT comes increased flexibility for teachers.

They can select from the entire pool of available applications those which best

complement their curriculum and students at any given time. The wide range of

Internet-based software and tools can also be quickly and easily served by the cloud.



### Portugal

On October 2012: A meeting took place at the University of Coimbra faculty of Psychology and Educational Sciences focusing on Games and Mobile Learning. This is a very good indicator that the Portuguese community is aware of the importance of these matters in Portugal.

Using a very common tool Wikipedia, we can say that the objective of M-learning is to provide the learner the ability to assimilate learning anywhere and at any time.

The objective of M-learning is to provide the learner the ability to assimilate learning anywhere and at any time. The term covers: learning with portable technologies including but not limited to handheld computers,[MP3 players](http://en.wikipedia.org/wiki/MP3_player" \o "MP3 player), notebooks, mobile phones and tablets. M-learning focuses on the mobility of the learner, interacting with portable technologies, and learning that reflects a focus on how society and its institutions can accommodate and support an increasingly mobile population. There is also a new direction in M-Learning that gives the instructor more mobility and includes creation of on the spot and in the field learning material that predominately uses [smartphone](http://en.wikipedia.org/wiki/Smartphone) with special software such as AHG Cloud Note. Using mobile tools for creating learning aides and materials becomes an important part of [informal learning](http://en.wikipedia.org/wiki/Informal_learning).

2011 and 2012 saw the increasing availability of multi-device authoring tools such as Captivate, Articulate Storyline, Lectora and GoMoLearning. These tools allow e-learning courses to be delivered to a variety of mobile operating systems and devices as well as to PCs, although not all tools output to all operating systems and devices.

There is a Journal well known at Portuguese universities, the International Journal of Mobile and blended Learning.

Educational technology sometimes termed EdTech, is the study and ethical practice of facilitating e-learning, which is the learning and improving performance by creating, using and managing appropriate technological processes and resources.

### Bulgaria

In Bulgaria, with the help of the concept, good practices in recent trends in education have been on computer technology introduced based and a number of conclusions have been reached:

* Yet the use of so called electronic registers of each class is widely spread in schools;
* The e-Portfolio, which is a digital collection of artefacts - resources and demonstrations of achievements, that represents a student or a group of students. The collection may consist of text, graphic and multimedia elements and may be available on the WEB or electronically;
* Education Portals with their most important part - the virtual library. They are based on e-learning platforms with an open code, e.g. Moodle, which is also used in the portal start.e-edu.bg – a project of the Ministry of Education, Youth and Science.

E-schools which are models of existing schools or have no prototypes. Some examples are:

- E-school in “Nayden Gerov” Primary School – town of Burgas,   
- E-school in “Academician S.P.Korolyov”

- HighSchoolof Mathematics and Natural Sciences – town of Blagoevgrad;  
- E-school of Bulgarian, Mathematics and IT;

- E-school for teachers and parents.

It turns out that virtual school is a very suitable form of schooling for Bulgarian students who live abroad. The First Bulgarian Online School (FBOS) was established on September 15, 2005. The mission of FBOS is to provide distance learning education in Bulgarian language, history, literature, geography for children and adults world wide.

In Bulgaria different European education portals are used for teaching and collaborative learning such as eTwinning which unites 134 000 teachers from Europe in 5300 active projects. The portal fully integrates tools of Web2.0 which are popular on the Internet and social networks and provides new ways of partnership, collaboration, education and training for users.

The TwinSpace is the name of a password-protected virtual classroom in eTwinning where you can work with a class or classes from other countries. You can

* send e-mails;
* have forum or chat discussions;
* keep a project diary;
* exchange worksheets and presentations;
* upload photos, films, collages;
* upload results of project work.

# 4.0 ADVANTAGE OF THE INNOVATIVE IT FOR DISABLED AND HOW THE DISABLED CAN USE

According to the definition, disability is a long-term state in which there are some limitations in proper functioning of human being. Those limitations can be caused by lowering of functionality of physical and psychological functions. It is also a defect which can be psychological, physiological or anatomical of organism structure. The damage can be full, partial, permanent or temporary, inborn or acquired, stable or progressive.

Development of Information and Communication Technologies (ICT) enables disabled persons to do many activities that were not possible before. Thank to ICT, handicapped persons can study and work. They can fully participate in social life. New technologies caused a revolution in disabled people’s world. Undoubtedly, information and telecommunication technologies are very useful tools for disabled people. By using these technologies, disabled people can have more advantages in their all life. There is a range of solutions just as there is a range of needs. In some cases only the most advanced technology can help; in others, simple and inexpensive modifications will revolutionize a person's lifestyle. Many of the simplest adaptations will benefit all users, not only people with specific disabilities.

Access to information and telecommunication technologies offers disabled users improved

independence, mobility and quality of life. For many, it means the opportunity to work.Information and telecommunication industry has made enormous progress over recent years.

## 4.1 Review Of The Policy And Legacy

The UK government has policy and plans in place, but they all stem from wider initiatives about inclusive digital access and eAccessibility. Access to ICT is specifically mentioned in the UN Convention of the Rights of Persons with Disabilities ratified by the UK government in June 2009. The legal frameworks cover people from “discrimination in the workplace and in wider society” and make sure OFCOM, the independent regulator for the UK communication industries is aware of anyone breaking the equality act in a communications aspect.

This legal framework covers both employers and education institutes and makes sure that there is a reasonable adjustment. A recent edition of POSTNOTE – the newsletter for the Parliamentary Office of Science & Technology outlined some of the issues faced by disabled ICT users.

According to Austrian law persons with special needs must be assured equal opportunities of access to the information society. Austrian Federal Constitution establishes the principle of equality before the law and also contains a specific ban on discrimination of disabled persons: "No one shall be discriminated against because of his/her disability. The Republic (federal regional and local authorities) commits itself to ensuring the equal treatment of disabled and non-disabled persons in all spheres of daily life." An important part of the implementation of these constitutional principles was achieved by the Federal Act on the Equal Treatment of Disabled Persons, which, among other things, contains a ban on discrimination, establishes criteria for an evaluation of the reasonableness of demands and regulates the legal consequences of discrimination against disabled persons.

The Convention on the Rights of People with Disabilities adopted by the General Assembly of the United Nations in 2006 was published in Portugal in 2009.

The Convention is an important legal instrument in the recognition and promotion of human rights for people with disabilities and the prohibition of discrimination against such people in all areas of life, namely, education, health, access to information and public services. Other strategy and policy documents for inclusion at the International and European level serve as reference for the national level, such as the Salamanca Statement and the European Strategy for the disabled. Portugal follows this frame of reference with regard to educational policy on the inclusion of students with permanent Special Educational Needs (SEN). This legislation defines the specialized support in special education, describing the educational measures to be applied, including support technologies and services in schools.Information and Communication Technologies (ICT) have increasingly become part of the modern education system, as our society has surrendered to new technologies which are present everywhere in a multitude of different forms.

ICT aims to increase the level of participation and activity of the students in Portugal. This will consequently facilitate their performance in different tasks. Schools have a commitment to promote and provide support technologies adapted to the individual needs of each child / young person with or without SEN. With the support of ICT, students with SEN will have access to the same educational opportunities as other colleagues, developing their autonomy and the expression of their capabilities. The school is no longer the only distribution centre of knowledge and teachers need to be prepared to respond to the changes that this brings.

According to the General Census, in Poland live 5,5 mln of disabled persons, of which 4,5 have certificate of disability and 4,3 mln are people aged over 15. The most common causes of disability are cardiovascular, locomotor and neurological disorders. The relatively lower percentage of persons with impaired eyesight and hearing, mental illness and mental retardation in the community of people with disabilities, however, concerns of thousands of people with reduced efficiency in daily functioning, and therefore require a specific approach in education, the labour market and in everyday life.

In Italy gouvernment encourage the building of a social network enabling independence to develop with more assistance coming from a living environment. There are some important organization and one of them is t**he foundation ASPHI** (Developing of Projects to reduce a handicap by means of Information Technology) - an Italian non-profit organization of businesses and groups cooperating with a mi**ssion to “**Promote the integration of people with disabilities in schools, in employment and in society through the use of Information and Communication Technology".  Differently from many other organizations, ASPHI founding associates are not physical persons but businesses and organizations, some of them relevant at a national level (such as IBM Italia, INAIL and INPS) who sustain ASPHI's activities and services through contributions or offering the services of their own staff. ASPHI is involved with research and innovation, paying particular attention to: new projects and new needs; Training of teachers and carers; engineering new training software; mass screening for preventative solutions to problems such as deafness or dislexia; a consultancy service for work placements and education of disabled adults and children; promoting information through contacts, Asphi's presence at conventions, etc. ASPHI represents a point of reference at national levels within new technologies for overcoming disabilities, as a Reference Centre for information technology applications towards the integration of people with disabilities.

## 4.2 Benefits Of Implementing New Technologies For People With Disabilities

Good designs for disabled people are often good designs for everybody. There is a big need of designing these technologies for disabled people. Designers are faced with two immediate problems for the needs of disabled people: how can new technology help disabled people to fulfill whatever task they wish to perform? And how can the system be designed with dual facilities for disabled and not-disabled users?

Benefits of implementing new technologies for special students are as follows ;

• maximize independence in academic and employment tasks,

• increase participation in classroom discussions,

• help students gain access to peers, mentors and role models,

• help them self-advocate,

• provide them with access to the full range of educational options,

• help them participate in different experiences not otherwise possible,

• provide them with the opportunity to succeed in workbased learning experiences, secure high levels of independent living,

• prepare them for transitions to college and careers,

• give them the opportunity to work side-by-side with peers,

• help them enter high-tech career fields,

• encourage them to participate in community and recreational activities.

## 4.3 Projects And Initiatives Concerning IT For Disabled

There are roles for Web accessibility in Austria. For content presented on the Internet, the WAI Guidelines, developed by the international non-governmental organization "World Wide Web Consortium (W3C)" for web-based content, are used as criteria for evaluation. These Guidelines define standards for the accessibility of web content for persons with a disability.

Persons with cognitive disabilities tend to find it difficult to read long, complicated texts and texts containing many words of foreign origin and technical terms. Socalled **easy-to-read texts**, such as are often offered as a second version on the Internet, are intended to summarize complex sets of facts in a simple and easy-tounderstand way and thus to facilitate assimilation of the information.

ICT offers persons with special needs an opportunity to compensate for the effects of their disability. Assistive technologies (in the areas of both hard- and software) facilitate access to computers and/or the Internet. These include alternative keyboards that, by comparison with normal keyboards, have larger, smaller or specially designed keys or that can be operated by one hand, or electronic display devices that control the indicator on the screen without the use of hands (e.g. by ultrasound, infrared rays, eye movements, nerve signals or brain waves). Other possibilities are provided by touch screens that permit the operation of the computer by touching the elements displayed on the screen instead of using a keyboard and mouse.

In Poland there are many initiatives concerning IT for disabled. The example is Technical University of Lublin, which together with Foundation "Institute for Regional Development" carries out workshops in field of IT for disabled. The aim of workshops is to exchange and disseminate the results of research regarding AssistiveTechnologies (AT) and Information and Communication Technologies (ICT). These workshops serve for common inspiration for academic environment and using the new methods regarding ICT for disabled. The subjects of the workshops are:

- E-accessibility

- Design for all

- Assistive technologies

- Web accessibility

- Inclusive e-government

Another interesting activity in Poland is the project "IT for disabled" carried out by Association Free Entrepreneurship. The aim of the project was vocational activation of disabled persons by increasing their employability. It involved diagnosis of IT competences of disabled persons, training in field of ICT and specified training designed to needs of disabled persons. The project has been funded by European Social Fund.

A phone survey was conducted with 80 visually impaired people in Turkey to understand what types of assistive products are used and to what extent. The perceived utility of selected products and reasons for nonuse were investigated. Descriptions of products that would be useful for the participants but may not be available on the market were also obtained. The three most used assistive products were found to be computer screen readers (46%), talking watches (26%), and screen readers for cellular phones (21%). Cellular phones with screen reading capability are the most desired assistive products among the visually impaired community, but their high cost is a major barrier. Most of the relevant technologies are available but some product development, such as adaptation to the Turkish language, is necessary. The three products most frequently requested are bus station/destination announcement systems, devices that warn the person about barriers, and devices that read printed documents and signs.

There is a great need for IT resources in less developed regions in Bulgaria and besides widespread trainings and workshops in computer literacy in various European projects, USAID created in 2001 ten telecentres in the country. They provide many information and consultancy services to the general public in various locations. USAID`s training program organizes workshop on ICT for disadvantaged groups. Nongovernmental organisation “Centre for Independent Living” and a group of experts presented detailed issues and resources related to the information technologies for people with disabilities.

## 4.4 What Are New Technologies Used For Supporting Disabled?

### Technologies for vision impaired people

The project "Access to electronic information for people with disabilities in Bulgarian libraries" is an initiative of the Association of librarians and information workers - the largest professional organization of librarians in the country and received the support of British Council Bulgaria. An important achievement of the project is website and web portal http://www.libsu.uni-sofia.bg/project\_access/, which has a graphical and a text version. With the collective efforts of the participating libraries are identified full text resources available on the Internet and electronic library resources in text format, available for use by blind readers. Web site of the project is unique in a collection of useful web addresses, classified under different categories. Another concrete result of the project are equipped nine reading seats for blind readers in nine participating libraries with specialized software *JAWS* for Windows and *Speech Lab 2.0.*

In Portugal Braille writing devices such as the Perkins mechanical machines, the Mountbatten electronic machines or Braille lines connectable to a computer along with Braille printers and document readers are intended for blind people. Some of the technologies for people with vision difficulties consist of various devices to enlarge images, ranging from common magnifying glasses to portable electronic magnifiers. In addition to these devices is a variety of commercial and free software that can be installed on a computer, e.g. screen readers, speech synthesizers, optical document readers (OCR), speech recognition software, and software for enlarging letters / characters.

In Austria blind persons either use the audio response version or the translation into Braille for their computer work, while persons with seriously impaired vision often prefer special enlarged print versions. Their computers will then be equipped with the relevant additional hard- and software.

### Technologies For Hearing Impaired

Communication among deaf people is made through sign language, so video conferencing resources and online services that allow the use of webcams become important to visualise gestures. In addition to commercial video conferencing software, there are various free systems available, such as Skype for video calls. This can also work in conjunction with other free screen writing applications (iDroo). Google Hangout is another free tool that permits including up to 10 users in a conversation and allows the use of other associated tools. Various free Videoconferencing resources that incorporate screen with writing tools, audio control, chat, desktop sharing, and session recording exist: (eg FlashMeeting, ooVoo, BigBlueButton, WiZiQ, BigMarker, etc.). New resources will certainly come out, given the increasing availability of online tools.

There are other devices that can help people with hearing problems, such as FM amplification systems, which reduce noise and capture the sound of the speaker. This can have obvious advantages in the classroom. There are also systems of lights which substitute the alerts and sounds commonly found on computers.

As an activity of one of the Project supported by Technological Research Council of Turkey (TUBITAK), the research was carried out in a School for the Handicapped. This school was established in 1993. There are 150 hearing impaired students enrolled at this school. Sign Language is not used within the university however students are free to communicate in sign language. This two-year degree program is modified to accommodate hearing impaired students who are allowed to complete the program in three or four years. There are currently four career choices: Computers, Ceramic Arts, Graphic Arts, and CAD. School for the Handicapped started during 1993 academic year. The aim of the school is to offer special education for the handicapped in vocational programs and thus enabling them to become productive members of the community. The Department of Applied Fine Arts offers undergraduate programs in both ceramic arts and graphic arts. Department of Administrative Vocations and the Department of Architecture offer two-year degree programs in computer operator training and architectural drawing. These departments are equipped with the necessary technological aids to accommodate the educational needs of the hearing impaired. Students are provided with the latest audio visual teaching aids, PC and MAC laboratories and access to the internet.

The primary goal of the project is to help hearing impaired students in Turkey to use mobile information and communication technologies effectively and independently, and provide them with learning and communication opportunities enriched through mobile technologies.

The majority of efforts by assistive technology specialists to make reading materials accessible have involved scanning textbooks into the computer and teaching students to use text-to-speech software so they can listen to information that they could not read independently.

Students can carry the electronic course content with them thanks to electronic devices. These devices furnished with wireless network provide opportunities for team work inside and outside the classroom, and enable students to ask questions to their teachers and classmates, and get answers in any time and place. Mobile computing, cell phones, and other wireless technologies can benefit from systematic frameworks to identify user-centered requirements to enhance accessibility and usability of products.

### Technologies For People With Mental Disabilities

The idea for the project "Model for training and employment in the ICT sector for people with autism spectrum disorders" emerged in 2007 and reflects the desire of IT companies BASCOM (Bulgarian Association of Software Companies) to offer jobs to people with disabilities. ESI (European Software Institute) Center Bulgaria and BASCOM with Autism Association developed a draft model that includes IT training for companies and practical training of candidates for the job. The project provides 20 people with autistic disorder to undergo basic and practical training on IT. For employers will be organized a series of seminars and training how to work with people with autism. According to the laid results employees with autistic disorder will test software errors, accessibility for persons with disabilities, will administer data, will work in offices or perform other appropriate activities.

### Technologies for People with Physical Disabilities For Computer Access

Computer access difficulties are in some cases related to neuromotor problems and paralysis, so solutions are customized to the needs of each person. When there are limitations in controlling the computer mouse with the hands and arms, different types of switches can be used. In some cases, a joystick may be more suitable than a ball or larger mouse (trackball). When the arms are paralyzed, head – pointers or a switch mounted on an articulated arm can be used to control the computer or write on the keyboard. In other situations, the computer can be controlled with eye movement, using specific software. Operating systems (Microsoft and Apple) offer a range of accessibility options that can be configured according to user needs (cursor configuration, expansion and contrast of characters, virtual keyboard, etc).

## 4.5 Free Software

In addition to specific commercial and more sophisticated software, there are many free applications providing access to the computer (speech synthesizers, voice recognition, enlargment, symbols, etc.). Many of these applications are collected in repositories and can be downloaded to a computer from the respective websites. There is also a lot of common software available for students with special educational needs.

• Technologies for hearing - software for recording and voice playback (eg Audacity, Wavosaur, Vocaroo, Soundcloud, etc.)

• Technologies to organize information and ideas including mind maps, diagrams, and other organizers (eg Pinterest, Livebinders, Symbaloo, Bubbl.us, Mind42, Remember the Milk, etc.)

• Technologies for reading, for those who have vision problems, speech synthesizers, software for recognition of characters / optical readers, documents in alternative formats (eg Balabolka, ReadSpeaker, Philips Free Speech 2000, Daisy Reader, etc.)

• Technologies for writing - there are features in word processors that help to resolve writing difficulties such as predictors of words or spelling checkers, and there are applications that can be installed for this purpose. There are also virtual keyboards for people with motor difficulties and for those who cannot handle the mouse or keyboard (eg: Eugene, Gaze talk, Virtual Keyboard, etc.).

**Pocket computers** called PDA (Personal digital Assistant) were used in the project to support the face to face courses and enrich the interaction opportunities in Turkey. PDAs are devices used widely in m-learning practices. These devices work with operation systems such as PalmOs, Symbian, and Windows CE which are developed specifically for them. They have screens which can be controlled by touching. They can make wireless communication with other devices (PC, printer, etc.) possible by using mobile communication standards like Bluetooth. Turk Telecomunication service provide telephone library in which many novels and the books were read for visually impaired people.

Italian national fair of technologies *Handimatica 2012* at the service of people with disabilities was conducted last November (the 22nd to the 24th) at Aldini Valeriani-Sirani Institute in Bologna. The Students at the school have been absorbed by hosting the fair, which attracted a large number of visitors. They were able to see the latest technologies, and follow-depth knowledge projects and associations in this field.

* **Translation lis TV programs -** The Rai Centre for Research and Technological Innovation, illustrates the innovative project Atlas. It is a platform for automatic translation in LIS (Italian Sign Language) made of different content - video, text, audio - using a virtual interpreter that translates directly in 3D on the monitor. This is therefore a very interesting project, on which the attention of improvement is focused, for example on the possibility to make more and more expressive the virtual interpreter.
* **Educational Technology -** solutions for children with cognitive difficulties, but not only. In particular, we liked the concept of shared attendance in school, divided into some useful tools to involve the whole class together at times didactic, no separations among children. Among these, the table-interactive whiteboard, with the projection screen directly on the table, with the possibility to interact immediately with a finger or a pen.
* **Video games - ​​**This is the first video game that can be played by blind people, thanks to audio descriptions that describe the scene and guide you through the game. Feature that makes it much more immersive, audio-description does not consist in speech synthesis but in real texts recited, allowing empathizes completely in the scene. Two fingers are enough to act on a tab that allows the main functions of displacement.
* **Simulators guide -** Also in video games, very popular especially among youngers the driving simulator perfectly adapted YOU DRIVE, which allows you to simulate crazy fun rides in a car with adapted controls, like real cars driven by people with disabilities. This is a way, not only to have fun but also to experiment for the first time with the car guide adapted, in case of later disability.
* **Games and accessible art -** The **"Touch then see"** allows you to transform two-dimensional paintings in bas-relief resin that can be touched, then read by blind people.

ICTs have evolved significantly, and are nowadays an essential support tool in our day-to-day life, either in simple or in more complex activities. In the school context this is undoubtedly an endless source of learning as it provides expertise in different areas, engaging the students in a new relationship with knowledge and enriching the interactions between their different users.

ICTs make a significant contribution to the development of core competencies in Special Education. They are a basic tool in the teaching / learning of students with disabilities, which can respond to each student’s specific problems and contribute to their autonomy in certain tasks that would otherwise be unachievable, just as they also permit interpersonal relationships with other children and adults.

The most important fact is that in general disability is a popular subject in partner’s countries and the society is more and more aware of problems of disabled people. IT is a possibility to improve quality of life of disabled, increase their employability and support social inclusion.

# 5.0 HOW PARTNERS INTEGRATE E-LEARNING & ICT TECHNOLOGIES

Different countries are at different stages in implementing and using technologies to enhance ‘e’ and distance learning.

Distance learning can be integrated in a number of ways in education – from pure distance learning where neither the tutors nor the students ever meet, though to blended learning where students are taught with a mix of distance and traditional learning through to e-learning being used to augment teaching skills. The students on these courses are studying in this way on a range of different reasons. Many of the partners are focussed on the use of E-Learning in the Vocational aspect.

### Portugal - University of Évora

The University of Évora has already got a well-developed distance learning provision, in conjunction to with their Centre of Educational Technologies (CET). This in house provision has allowed the university to develop a range of distance learning courses across different schools with the same technologies, and to the same standard.

The University uses a range of tools that are in common usage across many of the partners. They use ‘Moodle’ as a virtual leaning environment, in order to communicate with students, distribute learning materials. Video files and video conferencing is also used to teach elements, especially in linguistics.

### UK – Staffordshire University

Unlike the Portuguese, Staffordshire University’s Games Design department is only starting out in distance learning. Some areas of the university have had postgraduate courses in some subjects for a long time, but there has been little development in undergraduate provision. The Games Department is pioneering a full undergraduate degree in Computer Games Design, teaching both technical skills in industry standard software and theoretical aspects.

Starting from a blank slate the department has developed a series of technologies, alongside our support department ‘Learning Development & Innovation’.

The department has developed a forum in order to mark work, and allowing students at a distance to submit work in the same way as on campus colleagues. Other systems within the Virtual Learning Environment, Blackboards, are used to accept work – TurnitIn and a custom built upload system – allow a range of file formats and assignments to be submitted.

In order to communicate with the students they also use a combination of Skype and they are working with a Californian company called Sococo to develop a virtual university environment along the lines of the company’s current virtual office environment.

### Poland – Danmar Computers

In Poland there is a project known as ‘LearnIT’ – this combined using more commonplace E-learning technologies discussed elsewhere in this report, alongside more unconventional M-learning aspects – with the M standing for Mobile learning. This project was built to strengthen the skills of those working within the IT sector, for a range of SME’s (Small Medium Enterprises – usually consisting on 5-20 people).

Having independent IT workers up-skill on a flexible way, using on the go technology, allows for them to work on a wider range of project and for a wider range of companies, building up communication and co-working opportunities – while creating a learning community within a fast paced, and ever changing environment. Having a wide net of learning to fall back on also helps overcome the language barrier that can be a stumbling block to learning about new technologies or systems.

### Italy – Polo Informatico Ltd.

Unlike some of the previous partners the Italian group doesn’t at this present time provide any e-learning provision at its classes in computer skills and office software. However within the research led practices that informs Polo Informatico’s approach to teaching is leaning towards further inclusion of e-learning, above and beyond the current focus on co-operative methods in the classroom, incorporating ICT.

This is in part to do with the changing nature of the students that Polo Informatico are dealing with – the increase in ‘digital native’ – student at home with new technologies and methods of learning pose an interesting challenges to tutors and educators the world over. As they increasingly consume media, contents and technology in social situations they expect the same from education, leaving tutors running to catch up. IT is generally considered wise to take a cautious approach to introducing new teaching methods, especially those reliant on technologies, to make sure that the methods and practices involved are correct, and the at the pedagogical process isn’t comprised for the sake of the latest gadget.

### Bulgaria - Citizens for Public Initiatives St. Peter and Pavel

The specific nature of the Bulgarian partners provides a different outlook to most on the use of ICT in the classroom. Since they work primarily with people suffering from disabilities, they don’t specifically deal with e-learning and ICT with their students. PowerPoint and E-Portfolio tools are used to help the students as they aid with memory and work displayed. They do however use a range of ICT related tool to train associates – these include Moodle to provide a virtual learning environment and a custom interactive lecture platform, funded by another European project.

### Austria – Club Life Long Learning

Austria has had in place a series of initiatives to raise the profile and reach of e-learning within its country. They have been in place for many years and the technology involved has developed with the time. During this time the techniques have become embedded within the educational practices of the country. The focus of e-learning platforms on specific subjects e.g. history and science also show a definite strategy and implementation plan within the country.

The maturity of the Austrian implementation means that e-learning and distance learning is at a point where higher levels of qualifications can be obtained in this method, as we’ve seen with the UK & Portuguese partners. It takes a certain amount of faith and a lot of high level design in the system to allow for this level of learning taking place at a distance, away from traditional teaching methods.

Alongside custom built platforms and content systems, many of the same tools found in other partner countries have been implemented in the Austria e-initiatives. These include the use of Dropbox, Moodle & Blackboard.

### Turkey - Cukurova Ilce Milli Egitim Mudurlugu, Niksar Ilce Milli Egitim Mudurlugu & Muradiye Kız Teknik ve Meslek Lisesi

The Turkish partners all hail from schools,, or school district, so they presented the range of technolgies that are used to organise the teachers – both with ttraining and administration tasks. The cnetrally controlled system allow for training in a range of skills, certificates of study and participation and e-learning and e-conferences are administered too. There are still elements of face to face tuition and coneferences.

This heavy use of e-learning to aid teaching staff cirecumvents on of the large issues that faces Turkey, the sheers scale of the country and the the remote aspects of some areas. E-learning is used by both stduents and staff to better their skills, including English language and ICT skills. The goal appears to be one of providing the classes, tool and technology to enable Turkish students to be come self reliants learningers, taking advancge of the welath of eductaion at thier fingertips to increaser thier understanding.

## 5.1 Similarities & Best Practices

In house teams of developers – both the UK and Portugal have had help within their higher education establishments. This allows for the development, and testing of a new, wider selection of technologies.

The Polish use of M-Learning creates an innovate method of reaching a wide range of students, while minimising the need for computers. As Mobile, and smart phone technologies develop it is clear this will be an increasingly developed area.

This issue of dealing with digital natives is not one for Italy alone, but all the partners. Many other aspects are common to all practitioners, issues around validating the assessment to the specifics of the learning, security on accessing the information for the student and matching assessment aspect to the correct method of learning. In all cases the technology used should support the learner, tutor and what is being taught – and not lead the way.

The Austria government too great steps to implements the Europe wide action plan eEurope in 2005. This action plan takes in a comprehensive range of areas of education – and aspects of it are used across the board in educational institutes in Austria. A lot of the eLearning aspects are managed by a central source, and it’s clear that this action plan overcomes many of the hurdles faced by other partners. Centralised government and other agency support clearly play a big part in the Turkish roll out of e-learning facilities too.

Producing quality digital and e-learning materials is time consuming and expensive and these issues, among other like infrastructure and support, can be a barrier to effective e-learning implementation. It is up to us to share best practice and learn from our partner countries about the best approaches to ICT and E-Learning implantations.

## 5.1 Technologies Commonly Used

**Virtual Learning Environment**

* Moodle - <https://moodle.org/>
* Blackboard - <http://www.blackboard.com/>

**Video Conferencing**

* Skype - <http://www.skype.com/en/>

**Virtual Universities**

* Sococo - <https://www.sococo.com/home>

**Content management**

* Forums - <https://www.phpbb.com/>
* Dropbox - <https://www.dropbox.com/>



# 6.0 GOOD PRACTICE IN ICT FOR TEACHER TRAINING

In the usage of ICT for teacher training there are some major similarities between all counties, there are some significant differences that deserve our attention. There are 3 major points:

1. The history (development) of using ICT for teacher training
2. Review of the using ICT for initial teacher training and teacher development ( in-service training)
3. Good practices ( projects practising) for ICT based teacher training

Given these points, this report shall go through them all having the most important ideas of each individual report.

## 6.1 The History (Development) Of Using ICT For Teacher Training

Most counrties developed the idea of using ICT for teacher training-learning between 1980’s and 2000's.We will examine the history (development )of using ICT for teacher training country by country.

In Turkey,the usage of ICT for teacher training started at the end of the 1990s. Programs used in development of teacher training were run by The Ministry of National Education such as MLO (Curriculum Testing Schools), ILSIS (Management lnformation System for Provincial Directorates) and MEBBIS (lnformation Systems of the Ministry of National Education) caused a change in the structure of administrative process. By this new approach, e-school, mebbis, e-school information system for parents, e-school information system for school administrations were established.

In Austria,between 1997 and 2001 there was a great develepment in e-learning market. However,due to an economic recession this development slowed down. From the report we also learn that for teacher training in Austria modern media from where the teachers can use materials for their lessons has a great importance.

In Bulgaria, the usage of ICT for teacher training takes shape according to ‘Learning Action Plan' passed by the European Commission(March-2000).This Action Plan has some aims such as training teachers to use digital technologies, development of European educational services and software, accelerate development of an integrated academic network serving schools, teachers and students.

In Italy in 1985 the National Information Technology Plan (PNI1) was created, aimed primarily at teachers of mathematics and physics of the first two years of high school. Training was provided for about 20,000 teachers and 7000 computer facilities were created in as many high schools. Another program is IRIS (Initiative and Research for Information Technology in the School) aimed at teachers in primary and secondary schools. In the 1990’s teachers began to use some software packages such as CAM, CAD in teaching of their subjects. This was followed by the second National Plan for Information Technology (PNI2) for the use of ICT in teacher training.

The “boom” for ICT teacher training in Poland started around 2010.It is very interesting that the attempt for usage of ICT was firstly initiated by the teachers themselves.

In the UK the development of teaching computer programming as oppose to using computers in schools for communication and technology is at the forefront driving the new curriculum in ICT. In recent years schools and teachers have been asked to return to the basic computer teaching started with BBC’s basic project ‘BBC Computer Literacy Project‘ created in the 1980’s and away from defining ICT as using a computer. This has brought about a new project “BBC Computer Literacy Project 2012”.

Noticeably there has that between 1980s and 1990s there was a great boom in usage of ICT, making it a viable way of education.

## 6.2 Review Of The Using ICT For Initial Teacher Training And Teacher Development ( In-Service Training)

In Poland, ICT-based courses are designed for skilling up for the teacher who have their diplomas and actually teach at schools and universities. They have a chance to develop their skills thanks to e-learning lessons. They learn how to use ICT in their everyday work. Moreover, the teachers in Poland use ICT and its tools while learning foreign languages. However, there isn’t enough data for using of ICT for initial teacher training in Poland.

Turkey began to make programs to improve quality of their prospective teachers and the teachers actually teaching in school in 1985. For example two important distance teacher training programs were started in 1985-86 and 1990.These programs aimed at training of primary and secondary school teachers. The other projects to improve quality of teachers by using ICT were ‘the National Education Development Project (NEDP) in 1998’ and ‘Project for Globalization in Education 2000’. Their first aim was to train teachers and prospective teachers in programming and computer literacy and improve quality of them. Since 1985, in-service training programs such as "Formatter Teacher" training have been used to train in-service teachers as teachers of computer.

In Austria, 1998/99 was a year when Austria came into its own in Europe in using ICT by creating an organised teacher education in the use of ICT in schools.

In Bulgaria there are stages in training and qualification of teachers. Firstly heads of computer labs are trained. Then, all teachers are trained in order to gain basic computer skills .In the last step all teachers of different subjects are specially trained to gain skills to use ICT in education. Moreover, Bulgaria uses various kinds of virtual libraries in order to prompt use of ICT in all braches.

Italy has created many programs in order to adopt the use of ICT in all fields, especially in education. As previously mentioned, the second National Plan for Information Technology (PNI2) in 1991 forms an important part of using and application of ICT both in schools and in-service-teacher training. There are also some projects such as Communication connected to the Computer (CMC) which enables a communication at distance by using computer, e-mail, video conferencing modules etc. The system in Italy is also based on a certification system (the ECDL-European Computer Driving Licence and EUCIP Certification - Project EUCIP4U) on different levels to develop technological skills in students. As a part of the Legislative Decree n 59/2004 the computer and new technologies became an important part of education system. So, many institutes for the initial teacher training include special courses applying the use of Information and Communications Technology to the educational and teaching field. The other important projects for the usage of ICT in teacher training are ForTic a training program on the network in 2002-2003, DiGi School in 2005 (dealing with digital disconnected ), e-Twinning (e-learning program promoting collaborations among schools through different types of Information Technology and Communications by using internet, e-mail, video conferencing and virtual classrooms).

Unfortunately, in Portugal there is no initial teacher training on ICT learning. Blended learning is only used on in-service training. As for UK’s position, the quick explosion of technology has enabled students learn some lessons in conjunction with computer such as maths, science etc. As a result teachers felt that they had to capture the ability of students using computer. Therefore, it was aimed to train all teachers to teach using computers and assisting students fulfil their aspirations in all areas of the curriculum.

## 6.3 Good practices for ICT based teacher training

Each country has projects for ICT based teacher training. The projects have different names but they have same aims. Firstly, in Austria, school teachers use network learning called e-LISA for their online courses. Moreover, some networks such as eBuddy, eCoach and eTrainer are used in pedagogical institutes of Austria to promote teachers in usage of e-learning in their lessons. In Poland two important projects for ICT based teacher training firstly **‘**Teacher and headmaster using ICT – an opportunity for modern teaching in Silesian schools’(for teachers, headmasters and school administrative staff ) and secondly ‘Foreign languages are not foreign tous’ (to improve the language skills of teachers).

In Bulgaria, special projects and programs have also been developed in order to use ICT for teacher training. Some of them are Share.tec (a portal for teachers),TEC(a project developed in the frame of Share.tec),TEO(2009),Partners in Knowledge (a program which provides new technologies in education).

In Turkey, there are many projects about usage of ICT in teacher training. The projects (included INSET-in-service education and training-courses) are organized by the Ministry of National Education (MoNE). Two of the projects in Turkey are FATIH( the classes will be equipped with the latest information technologies and turned into computerized education classes (Smart Class) ) and WITPET(2005-usage of distance learning to develop computer knowledge of the vocational / technical school teachers). In addition to these projects, some e-certificate programs and some e-conference(2011) experiences are developed to provide an online learning projects and to introduce the online environment to teachers. Intel® Teach Program(2003-for teacher training), the Intel® Learn Program(2005-provides a computer based-education out of school hours for students)have also important places in education system of Turkey.

In Italy, EPICT(European Pedagogical ICT Licence) a kind of certification system have an important place in education system of Italy. EPICT’s main aim is to develop practical skills and abilities of teachers and trainers in the use of Information and Communications Technologies in education area.

For Portugal the usage of ICT in teacher training has an important place in teaching and learning area. Thanks to practising projects the teachers use specific computer tools for different knowledge areas. For example, MINERVA is a project for primary school teacher to train them on educational use of internet in their lessons.

When we come to UK, by 2012 September, all teachers will have learned the functions of computer in order to use in their lessons and some companies are setting up some reasonable programmes to manage this. Eventually, this new strategy will be placed in teaching curriculum.

We can easily understand that through the years there has been a great development of computer programming, teaching abilities and also great success in guiding lessons on the computer. Soon, this development will be covered in the curriculum and all teachers will teach using computers in some form or other.

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# Appendix A: Projects [Partners](http://www.able-project.eu/partners.html)

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| **[cukurova 200](http://cukurova.meb.gov.tr/index.php)**  **TURKEY: Cukurova Ilce Milli Egitim Mudurlugu (Coordinator)** | **1-Cukurova District Directorate Of National Education**,is a local authority for national education and training in our district. We are responsible for all kinds of educational activities in our district. There are 230 schools, 3821 staff and 85820 students in our region. We are in the position of establishing schools, appointing teachers, guiding and inspecting them. We organise in-service trainings for teachers and the school staff.  Our  mission is to develop education-teaching process by following modern innovations and advances, by carrying out researches; to improve and to implement laws and other regulations through the general goals and fundamental principles of National Education System.  Where are we exactly?  niksar mapa      cukr map2.png   Contact: Kurttepe Mahallesi, Süleyman Demirel Bulvarı 83035 Sk. No:1 01035 Çukurova/ ADANA Tel: +90- 322- 248 18 55 Fax: +90- 322- 248 18 64 Email: [aysecif@hotmail.com](mailto:aysecif@hotmail.com)<http://cukurova.meb.gov.tr/index.php> |
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| **[polo 1](http://www.poloinformatico.net/)   [polo 2](http://www.poloinformatico.net/)**  **[polo l3](http://www.poloinformatico.net/) [polo 4](http://www.poloinformatico.net/)**  **ITALY    : Polo Informatico Ltd.** | **2-Polo Informatico Ltd.** was founded in Vasto in 1996 with the objective of becoming a reference point for IT sector around the territory. It establishes partnerships with the most prestigious brands in the IT industry and satisfies effectively all market branches: the family, the Small, Medium and Great Enterprise, the Public Administration.  Polo Informatico is an organisation focused on  students, families, workers, unemployed persons, disables, people in Labour Market.  It consists of two branches:   * Vocational Training Center his hosting partners who have over seven years experience in hosting students in most workplace sectors. We arrange work placements, accommodation and other services. * Computer Discount Point Of Sale  provides computers for different categories of clients: SME, single persons, schools, municipalities and so on.     Contact:  POLO INFORMATICO LTD  C.so Mazzini, 146  66054 – VASTO (CH)   P.IVA 01762710695  Tel: +39.0873.378364   Fax: +39.0873379098  Email: [info@poloinformatico.net](mailto:info@poloinformatico.net)  [www.poloinformatico.net](http://www.poloinformatico.net) |
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| [Staffs 250](http://www.staffs.ac.uk/)  **UK    : Staffordshire University**  This project has been funded with support from the European Commission. This publication  reflects the views only of the author, and the Commission cannot be held responsible for any  use which may be made of the information contained therein. | **3-Staffordshire University** established in 1992, has evolved into one of the country's most dynamic, progressive and forward-thinking learning institutions. Always quick to adapt as student requirements change, we have become renowned for our ground-breaking new courses and first-class learning opportunities.    At Staffordshire University there are 16,000 students make up the University's vibrant cultural mix from the UK and around the world.  Games Technology is the largest department in the university. We have 470 students studying a selection of courses – all to do with making Computer Games.    Contact: Staffordshire University Faculty of Arts and Creative Technologies  Staffordshire University Beaconside,  Stafford,  Staffordshire ST180AD <http://www.staffs.ac.uk/>gamesdesign |
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| [logo evora 250](http://www.uevora.pt/)  P**ORTUGAL: Universidade de Evora** | **4-The** **University of Évora** is the second oldest university in Portugal, having been established in 1559 by the Cardinal Dom Henrique and the Pope Paul IV. It was primarily given to the Jesuits and its fame as a learning centre rivalled the University of Coimbra's, the oldest university in Portugal.  The Jesuit College operated between 1559 and 1759. With the expulsion of the Jesuits from Portugal by the Minister of the Kingdom, Masquis of Pombal, it had to be closed.  The University of Évora resumed work as a state-run University in 1973. We currently have 36 undergraduate courses, divided into 4 faculties - Social Sciences, Exact Sciences, Arts, and Nursery School - 85 master's degrees - 3 of which are ERASMUS MUNDUS - and 33 PhD. Our quality as an educational facility is often evaluated by the European University Association and we are also members of the Magna Charta Universitatum.  Our students come from every corner of the country, as well as from every corner of the globe, including all European countries bound by the ERASMUS project, Brazil, Venezuela, between many others, and to many of these students, Évora is their first choice in all of Europe.  Finally we have one of the lowest unemployment rates  in all the country, which grants us inner and outer satisfaction.    Contact:  Largo dos Colegiais 2, 7004-516 Évora Tel: (+351) 266 740 800 Fax: (+351) 266 740 806 Email: [uevora@uevora.pt](mailto:uevora@uevora.pt)<http://www.uevora.pt/> |
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| **[danmar-logo-only-sm](http://www.danmar-computers.com.pl/)**    **POLAND: Danmar Computers** | **5-Danmar Computers sp. zo.o.** is a new private and profit oriented company, but its employees have a great experience regarding Information Technologies and innovative IT solutions. They are holders of international IT certificates (MCP, MCSE and others) and for years, they have developed many computer-based solutions like e-learning platforms, automatic research systems or CMS.    Other fields that Danmar Computers sp. z o.o. works in are vocational education, IT training (including e-learning) and innovative solutions. Danmar's educational offer is prepared according to the needs of specific group. The largest target group includes employees of various companies (SME and large size), but also people that are disadvantaged on the labour market (unemployed, disabled).    Contact:  Danmar Computers LTD  Hoffmanowej 19 35-016 Rzeszów  Tel: +48 17 853 6672  Web:[www.danmar-computers.com.pl](http://www.danmar-computers.com.pl) |
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| **logo bg 200**  **BULGARIA: Sdruzenie “Grajdani za obstestveni iniciativi Sv. Sv. Petari Pavel”** | **6-Association “Citizens for Public Initiatives “St. Peter and Pavel”** was established in the town of Lyaskovetz, Veliko Tarnovo district.  This is a non-profit association in the public interest and is a voluntary, nongovernmental, non-political organization.   The mission of the association is to promote socio-economic development of organizations of people with disabilities, special needs and requirements, risk groups and disadvantaged communities and building social capital by encouraging public initiatives, social entrepreneurship and building partnerships.  The objectives of the Association are:   * to organize, encourage and promote initiatives through conferences, publications, seminars, or other media appearances; * to exchange of information and participation in networks; * to create contacts and exchange of experiences and best practices with various social organizations; * to support the development of education, science, culture and technology.   The goals of the Association are:  to provide expert information on best practices, working models, social initiatives and partnerships;   * to promote social integration, communication and cooperation at national and international level for people with disabilities and disadvantaged communities.   Contact: Lyaskovetz 5140 8 Vasil Levski str.Bulgaria Email: [giveahand\_bg@yahoo.com](mailto:giveahand_bg@yahoo.com) |
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| **[clllogo 200](http://clll.eu/)**  **AUSTRIA : Club Life Long Learning** | **7-Club Life Long Learning** ,established in 2010, - a registered association under the theme 'Life Long Learning'. The members of the management board have been involved in developing and managing innovative social projects and supporting NGOs who are interested in an EU project, finding international project partners, planning and implementing projects for the last 10 years.    Some members of Club Life Long Learning (CLLL) have been participants in several Grundtvig or LDV projects in the past. The Vice chairman of CLLL (Mr. Thomas Vondrak) is Contact person within this project, CEO at VondiConsulting ([www.vondi.eu](http://www.vondi.eu)) and very experienced as leading partner in EQUAL, Grundtvig and LDV - e.g.  a) LLP/AT-430/57/08: Intercultural Consulting Network  b) LLP/AT-430/56/08: Diversonopoly - Intercultural board game and network  c) 2010-1-CZ1-GRU06-03945-2: European Cultures and Language Diversity    Contact: Club Life Long Learning Templstr. 3 6020 Innsbruck Austria Mobil: ++43-664-2817496 Fax: ++43-512-562132 Email: [office@clll.eu](mailto:office@clll.eu) [Web : http://clll.eu/](file:///C:\Users\ihsan8\Desktop\KİTAP%20TASARI\Web%20%20:%20http:\clll.eu\) |
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| **[niksar 250](http://niksar.meb.gov.tr/)**  **TURKEY  : Niksar Ilce Milli Egitim Mudurlugu** | **8-Niksar District Directorate of National Education**  operates  under  the authority of Ministry of National Education and is responsible for the educational affairs in **Niksar**, which is in Black Sea Region with a population of 60.000. The Directorate includes the research and development unit, staff appointment departments, staff office, projects coordination unit, accounting unit, private education unit, education and students affairs and  apprenticeship, vocational and technical  training unit, non-formal training departments. There are 970 people employed under the directorate. Besides, 17 primary schools, 2 pre-school education centers, 3 regional primary boarding schools, 30 multigrade class-including primary schools, 1 academic  high school,  5 vocational secondary schools, 2 foreign language dominated high schools, 1  foreign language dominated  teacher  training  high school with a sum of 65 schools and  11.957 students attending them.1 vocational education center, 1 public education center, 1 teachers’ house directorate  and  1 counseling and research center  operate under the directorate as well.  Niksar District National Education Directorate  is an isntitution that consists of professional  trainers  and  administrators who can adapt new  technologies, methods and curriculums to up to date needs and educate appropriate labour force for  the  demand of both the public sector and the private sector.We operate in a cooperation with the universities, vocational schools and labor market.We have a sufficient institutional background for  following  most up-to- date information and experiences, new technologies and apply them.  Contact: Hükümet Konağı Kat : 3 Niksar/Tokat-TURKEY Tel: +90 356 5271198 <http://niksar.meb.gov.tr/><http://niksar.meb.gov.tr/pke/> |
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| van-tr-logo  **TURKEY: Muradiye Kız Teknik ve Meslek Lisesi** | **9-Muradiye Girl Technical and Engineering High School** opened in 2010.Our school which opened at 2010-2011 educational year, has 2 branch offices of 9th class, 2 branch offices of 10th class, 1 branch office of 11th class, 1 branch office of 12th class totally 6 classes and 186 students. In our school, there are 2 fields as education and development of children and information technology which opens in this year.Also, preschool education opens in this year.Normal and day student education is made in our school.  Our school’s basic value is student.Our school can effort for being beneficial teenagers for their countries. Our mission which depends on principles and revolutions,according to basic purposes of National Education, is to bring up individuals who follow developments of technology and savory, informed, skillful, modern, innovative, creative,respectful and respectful to society beside bringing in technical skills.  Our vision is to be a privileged place between schools which are equal with the best applying the system of education and teaching,bringing in well qualified students for needing developing technology.and reaching Turkey to the World Standards according to basic values of National Education.We adopt to principle of depending association culture,objectivism, concept of direction depending datas,justice at the task distrubition,union and public spirit,reality,developing planly,teamwork at the every areas,respect,love,clemency,confidence,sincerity, principles of generality and equality.    Contact:  Kandahar Mahallesi Askerlik Şubesi Yanı Muradiye/VAN  Tel: +90- 432-451 31 02  Fax: +90- 432-451 31 02  Email: [lem\_gok@hotmail.com](mailto:lem_gok@hotmail.com)  <http://okulweb.meb.gov.tr/65/09/972492/index.html> |

# Appendix B : PHOTO ALBUM







