Exploring the status of ICT use in adult education: Perspectives from eight European countries - "reflections, insights, and challenges"

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ABSTRACT

This article reports on the results from a structured survey returned from participants in Bulgaria, Hungary, Italy, Lithuania, Romania, Spain and Turkey (together with an agreed shorter submission from Cyprus). Participant countries' status of use of information and communication technology (ICT) in adult education specifically the national or regional policies in place, curriculum framework for the use of ICT in practice, availability of online learning resources and tools, reflections, insights, and challenges were examined. Furthermore the article sheds some light on potential use of mobile phones and games as ICT tools in adult education. The result of this study suggests that although in some of the countries, especially the new member and candidate countries, firmly-conceived national strategies for adult education are only beginning to emerge. The drive to develop in line with EU goals, policies and standards on lifelong learning is now creating opportunities for innovative approaches everywhere.

Key words: *Information and communication technology; ICT; adult education; adult teacher training; lifelong learning; ICT curriculum; ICT policies; European countries*

INTRODUCTION

Information and communication technologies (ICTs) and connectivity have been described as indicators for development (Forth & Mason, 2004). The last decade has seen the penetration and rapid advancement of ICTs into everyday life, which has important implications for education. Therefore, ICTs are increasingly becoming a central component of the learning and teaching environment.   The integration of ICTs in education and their use in developing countries are offering opportunities to enhance educational systems and expand the range of opportunities for social change in even the poorest communities, while facilitating the acquisition and absorption of knowledge regardless of socio-economic obstacles.

Recent technological advances have brought new opportunities and challenges to adult education and are having an impact on the way we teach, how students learn and the design and delivery of the curriculum. Schools and lifelong learning centers are trying to keep up with the developments in ICTs by increasingly allocating more money towards ICT and related tools. With the use of ICT, both adult trainers and learners can decide or chose more suitable ICT applications which are flexible in place, in time, personalized, reusable, accommodated to specific fields and are more economic (Fisser, 2001; Pelliccione, 2001).

The European Commission states that "adult learning is a vital component of lifelong learning policies, and essential to competitiveness and employability, social inclusion, active citizenship and personal development across Europe". This statement shows the importance of adult education as a part of life long learning which is increasingly being recognized (European Commission: Education & Training, 2009). The unprecedented growth of knowledge, dramatic

technological and societal developments and changes and the need to keep what has been learnt up to date has contributed to an increase in the importance of adult education.

The objective of this study was to identify the status of ICT use, policies, practices, services and issues in eight European countries. The national or regional policies in place, the curriculum framework, ICT use in practice, the availability of online learning resources and tools, reflections, insights, and challenges were investigated by conducting a survey to adult trainers. Furthermore the information about ICT in the educational practices such as facilitation of computers games, game methodologies and mobile phone practices in adult education were also examined.

ICT in the European Union

Within the growing priority being given to adult learning in European countries, ICT is seen as one of the important areas of focus. The economic importance of ICT skills, the potential of ICT to widen access to learning and transform the quality of teaching and learning are several reasons for this trend. To increase adults' access to ICT and learning and to acquire ICT skills, many countries have recently begun a number of initiatives and programs to introduce new policies. In the context of Europe, the use of ICT is currently very high on the political agendas of almost all the European Union (EU) and candidates countries as well as. The European Union eEurope Ac - tion Plan (2000) outlines the steps that need to be taken to move into the Information Society and the emphasis on the central role of ICT supported education in making the information literate community. On the other hand, the [Organization for Economic Co-operation and Development](#) (OECD) study called "Learning to Change: ICT in Schools" (2001) clearly shows how ICT is set to transform schools and the educational experience of pupils across the globe. According to eEurope Action Plan (2000) the Information Society has an impact on the life of every citizen therefore; it underlines the fact that ICT-rich education is the foundation of the information com - munity. In a study conducted by The OECD (2001), Learning to Change: ICT in Schools, indic - ates that ICT has begun to change students' school experiences in all countries.

Coordination between institutions is vital in order to disseminate ICT-rich education to all levels of society. Therefore, the European Commission Communication towards a European Research Area (2000) report discusses that there is a real need to improve coordination between research, industry and educational establishments and to make the potential of the information society available to all.

The role of ICT in education has been on the agenda of European countries for a long time. A report from *Eurydice: Key Data on Education in Europe* (2000) emphasizes policies, projects and initiatives which promote the use of ICT in educational sectors in EU and pre-accession countries. In addition, the role of ICT in developing and democratic processes is widely discussed by many researchers all over the world (Frasheri, 2002). However, information on the use of ICT in the field of adult education and life long learning programs (LLP) across Europe has been limited. Following the European Council in Lisbon in March 2000, the European Commission produced a Memorandum on lifelong learning, with the aim of developing a coherent overall strategy for Lifelong Learning in Europe. The conclusions of the Lisbon European Council's Memorandum on Life Long Learning offer six key messages and a structured framework for putting lifelong learning into practice. One of these six messages is to provide lifelong learning opportunities as close to learners as possible and in their own communities, supported through ICT-based facilities wherever appropriate (Downes, 2006). The memorandum states that "ICT offers great potential for reaching scattered and isolated populations in cost-effective ways not only for learning itself, but also for communication that serves to maintain community identity across large distances" (European Commission, 2000).

There has been much emphasis given through the European Union on the issue of ICT integration and its use across Europe. In an attempt to offer Life Long Learning and an equal chance to all Europeans to be educated; the European Commission opened several calls through which projects related to the development of ICT tools in education, the proposal of new ICT integration methodologies and enhancements and many other topics related to how education is funded. One of the priorities of the European Union is to improve European Adult Education promoting the use of ICT. This is under the Grundtvig program which launched in 2000 and is now part of the overarching Lifelong Learning Program. The Life Long Learning program (LLL) developed by the European Commission is the most important program in the area of learning at the moment and it offers a wide variety of opportunities in enhancing learning across all levels of education. The aims of the Grundtvig program are providing adults with ways to improve their knowledge and skills, promotion of the idea of life-long learning and dissemination of good practice examples, promotion of innovative methods and improving the quality level in the field of adult education and promotion of European co-operation among adult education institutions (EC Education and Training, 2009). The Grundtvig program mainly focuses on the teaching and study needs of those in adult education, alternative education streams, as well as the institutions and organizations delivering these services. Supporting lifelong learning and mobility in this way also tackles Europe's ageing population problem.

The Ilgereco (Implementing Learning Game Resources based on Educational Content) is one of the Grundtvig projects, a partnership of eight European countries (Bulgaria, Hungary, Italy, Lithuania, Romania, Spain, Turkey and Cyprus) that has been funded for two years from the European Commission. The aims of the Ilgreco were to take a birds-eye view of ICT developments and practice in the partner countries, to develop new instructional tools based on e-learning, electronic games and the use of mobile devices for the creation of learning methodologies in adult education; to develop and implement a course methodology for using games in education and create a game portfolio based on adult learning content based in two graphical interfaces web and mobile ICT platforms and to communicate project findings to a broad and varied audience. The identified target groups are informal learning centers such as cultural institutions (museums and libraries) and other institutions that provide training to adults. At the first stage, the project consisted of investigations in the current uses of ICT, policies, potential uses, and strategic implications. To conduct the study, pre-existing literature and case studies were reviewed. Think-tank meetings were held to debate the emerging key questions with project partners and to discuss issues related to political and practical implementation of ICT.

LITERATURE REVIEW

Adult Education

Adult in learning process can be described as a person who is socially accepted as an adult taking part in the formal or informal learning process. The term describes the art and science of helping adults learn known as andragogy. Andragogy is a set of hypotheses about how adults learn. The history of andragogy has its roots traced back to 1833. Alexander Kapp, a German grammar teacher, used the term to describe Plato's educational theory. Andragogy was developed into a theory of adult education by the American educator, Malcolm Knowles (Wikipedia, 2009). The practice of teaching and instructing adults can be described as adult education. According to The National Institute of Adult Education (England and Wales) Adult education is "any kind of education for people who are old enough to work, vote, fight and marry and who have completed the cycle of continuous education, (if any) commenced in childhood." (Britannica, 2009).

Adult learning theory outlines how adults learn which provides some guidance on how to structure and deliver new information to adult learners. There are several well known major studies focused on adult learners such as Houle's *The Design of Education* (1972), Kidd's *How Adults Learn* (1978), Kolb's *Experiential Learning* (1984) and Knowles' *The Adult Learner: A Neglected Species* (1973, 1998). Knowles (1980) outlines four key principles of adult learning:

- Adult learners are self-directed -- they want their education to be relevant to their jobs and lives.
- Adult learners draw on life experiences in their learning activities.
- The learning focuses on problem-solving.
- Adults in a classroom setting want to be involved in their educational planning.

Non-linearity, instant feedback, allowing learner to reflect their opinions and experiences (e.g. discussion, boards, blogs, modeling real life situations (e.g. simulations, games), and motivation futures of ICT are more appropriate to facilitate adult learning principles. Adult learners have more opportunities as a life long learner then ever before, thanks to the advent of new ICTs such as blogging, e-learning objects, computer games, simulations, social networks and virtual worlds. Especially, with the advent of new mobile media devices adult learning opportunities could also expand dramatically. Mobile Media enable constant, personalized access to media and information as well as the ability to participate in social networks regardless of time or place.

ICT and Adult Education

Generally technology can be defined as a tool for learning, thinking, communicating, creating, representing, and research (Bell, 2001). The term ICT refers to forms of technology that are used to process, store, transmit communicate, create, share or exchange information. In other words, ICTs are the computing and communications facilities with features that variously support teaching, learning and a range of activities in education (Becta, 2008). Studies suggest that interactive forms of learning with the utilization of ICT can lead more to effective learning and to a more empowered and demographic discussion among adult learners (Doubler et al., 2003; Jeris, 2002). There is some evidence that ICT has the potential to motivate low achievers, learners with limited literacy skills and poor qualifications (Pelgrum, 2003). Potentially, ICT provide the adult learners with an access to a large spectrum of learning resources, allowing personalization of learning and individual control over the learning process. Especially ICT might be a powerful too for countries with a priority of learning policies for adult learners with low skills and qualifications (Pont and Sweet, 2003).

The quality of education can be enhanced in several ways using ICT by facilitating the acquisition of basic skills, increasing learner engagement, motivation and enhancing teacher professional development (Wadi & Sonia, 2002). Larry Cuban's (1996) research on technology adoption in schools states that while the purchase of technology is an administrative decision, using the technology has always been a teacher decision, based upon the ease of mastery of the technology, reliability, flexibility of uses, and classroom order preservation. General expectation from all teachers regardless of the subject areas or of levels is that it is to be capable of utilizing the aptitudes of ICT to utilize effective teaching and learning activities (Lin, Lee, & Chen, 2004). Therefore, ICT in education as well as in adult education and training is one of the priority areas addressed all over the world.

Adults of today's world are living in an era of enormous change. Some of the most profound changes are occurring with the influence of ICT'. In this context, ICT use in adult education is a term used to describe the best possible use of new information and communication technologies in adult education.

In this changed environment, many critical questions arise for those working in adult education. Which skills are critical in order to live and work in the modern world? How can ICT contribute to improving the quality of the educational experience? What are the national or regional policies in place for the use of ICT in education? How can ICT be used in practice?

The European Union Memorandum on Lifelong Learning (2000) highlighted the crucial role of ICT in its six key messages. The commission also emphasized the potential for enabling individuals to become active learners by developing new and varied approaches to take advantage of the op - portunities offered by ICT. According to the memorandum, ICT skills are the essential foundation for active citizenship and employability in the 21st century (European Commission, 2000). There - fore, ICT is being mainstreamed in adult teaching and learning (Mason, 2007).

ICT-based learning technologies offer great potential for innovation in adult teaching and learning methods. ICT can lead to a widening of educational participation enabling the reaching to scattered and isolated populations in cost-effective ways. It can support a diversity of educational provisions and ICT can lead to better forms and outcomes of adult learning.

METHOD, INSTRUMENT AND PARTICIPANTS

Previous work looking at ICT and adult education (e.g. Hopey 1998, Mellar et al 2001) has mainly been based on surveys or interviews. Hence, the data was collected through open ended surveys in order to build as comprehensive a picture as possible of adult education providers from the participating countries. The participants of this study included trainers from adult education institu - tions in Bulgaria, Hungary, Italy, Lithuania, Romania, Spain, Turkey, and Cyprus as well. The questionnaire was sent out by email to the participants. Survey respondents volunteered to parti - cipate in the survey and answered the survey by email. In total, 15 questionnaires were returned from eight countries, with multiple responses received from each country except Cyprus. Thus the sample consisted of 15, drawn from eight different European countries. In collaboration with re - searchers within the project, questions were generated to investigate a range of issues related to ICT use and policies in adult education.

The questionnaire was for the survey of exploring perspectives from eight European countries and their status of ICT use in adult education. The related questionnaire is structured to have four main parts. The first section of the survey investigates national policies for the use of ICT in adult education. The second part was the curriculum framework for ICT in the adult education cur - riculum. The third section is designed in order to get information about ICT in educational prac - tices specifically computers, games methodology and mobile phones practices in adult education. The last part relates to ICT related research in adult education. Open ended questions were de - veloped to retrieve information and the structured questionnaire was used as an instrument of data collection. Project partners from the eight countries were from adult education centers, librar - ies, educational institutions and universities. The completed questionnaires were collected and the data was analyzed with the following results discussed. Participants were asked to provide references, supporting documents, quantitative data, URLs for each question in the note section. In the present study, the national policies for the use of ICT in adult education, the curriculum framework, ICT in practice and ICT related research in the eight European countries were ex - amined from multiple perspectives using the data gathered from the survey. The survey data re - sources were an analysis of the official policy documents by the higher education council, the ministry of the national education, analysis of the curriculum documents and research findings used as part of different and larger studies. The survey findings provided rich information on vari - ous issues at the micro and macro level of implementation of ICT in adult education and the re - lated polices of each country.

RESULTS

This study focuses on how ICT are used in adult teaching practice and what is the current status of ICT use, policies, practices, services and in available ICT resources in participant countries. Furthermore, the information about ICT in educational practices such as facilitation of computers games, game methodologies and mobile phones practices in adult education are also investigated. Results were based on a survey conducted to adult trainers. The survey included the national or regional policies in place for the use of ICT in education, the curriculum framework for ICT; ICT in practice, ICT related research and implementation data on the use of ICT in adult education and ICT connectivity. Based on an analysis of the structured questionnaire returns from participant partners the study sets out to establish a broad baseline by providing an analysis of conditions for the implementation of ICT in adult education.

National policies for the use of ICT in education: country overview

Contributors were asked to outline the use of ICT in adult education focusing on policy arrangements within their countries, policy referring to a specific national level statement on principles, policy initiatives, external organizations involving the use of ICT for both formal and informal learning, objectives, responsibilities, overall ICT policy and broadband project relating to ICT in adult education.

Bulgaria
The general term "adult education" is not widely established at official or strategic level. Instead, expressions such as: (continuing) vocational education and training; continuing education and training; lifelong learning; adult training; or simply 'training' or 'course training' are used to describe adult education contexts. There is no state policy in the field. In practice, many adult education institutions, such as language education centres or organizations providing team building training, project management training, conflict management training, etc. are not licensed by the government, which is not therefore responsible for their work, including ICT implementation. The Ministry of Education and Science (MES) which guides, coordinates and controls the implementation of government policy in the adult education. T here is no state policy related to ICT partnership among the adult education institutions.

Cyprus
The Ministry of Education and Culture (MEC) is responsible for the management of and legislation on education as well as the preparation of budgets. Centres for Further Education and Training offer the main programmes for general adult education in Cyprus. They function according to regulations approved by the Ministerial Council and by the responsible authority. In 1992 the government strengthened the organisational structure of these Centres through the assignment of local part-time authorities responsible for guidance and solving problems at local and regional level. The main priorities and policy orientations relating to Adult Education is to prepare Cypriot society to integrate itself fully in the European Union.

Hungary
The Ministry of Employment and Labour Affairs has now taken over responsibility for adult education and training outside the school sector from the Ministry of Education. However, the two ministries act together in the field of lifelong learning and co-ordinates the development of human resources and supervise adult training outside the school system. Their aim is to create a comprehensive policy framework for training measures in order to make lifelong learning. There is no overall ICT policy in adult education. Many higher education institutions have some kind of eLearning system, or virtual learning environment and the use of ICT in adult education by private educations is self-directed. Responsibility for ICT in adult education is not specifically assigned. The adult education system is quite diversified. Outside the formal system, institutions are largely

autonomous, although government recommendations are sometimes followed. There is little documentation available on ICT partnerships among adult education institutions.

Italy

The reorganisation of curricula has established greater decentralization, monitoring, occupational coordination, and new guidelines for accreditation and quality control, to assure acknowledgement and validation of qualifications. The Ministry of Education (INDIRE) is responsible for general adult education nation wide. Regional public institutions such as Centres for Further Education and Training offer the main programmes for general adult education. There are programs and initiatives to encourage the use of ICT to address new cultural and economic trends both for children and adults.

Lithuania

The Ministry of Education and Science and the Education Council have the responsibility for formulating policy. Development of the national curricula, teaching plans and educational standards, organization and supervision of examinations, and establishment of the main rules for educational finance are all central government responsibilities. The Centre of Information Technologies of Education is in charge of national policy formulation and the implementation of all governmental programs for the introduction of ICT into general education and adult education as well. The Ministry of Education and Science adopted a new national strategy and a program for the introduction of ICT into Lithuanian education; in order to integrate ICT into all levels of teaching and learning processes, to improve general education and vocational training. The aim of the strategy is to provide equal opportunities to all students to develop themselves and to obtain ICT competence according to personal and societal needs.

Romania

The Ministry of Education and Research, the Ministry of Labour, and Social Solidarity (MLSSF) and the Family institutions are the main authorities at the national level responsible for drawing up policies and strategies for initial and continuing vocational training. Non-formal and informal education is also the responsibility of MLSSF. Non-formal and informal education is a rather neglected area and not included in the statistics and official documents. The policies initiated by the Ministry of Education and Research are more closely adjusted to European objectives and priorities in the field of education and training. However, the use of ICT in adult teaching is at a low level compared with other the European Union member states.

Spain

The main suppliers of adult education in Spain are central government and the regional authorities, and to a much lesser extent, non-government organizations (NGOs), town councils and private institutions. Education in Spain is totally decentralized to autonomous communities according to geographic location, each of which manages its own resources. The ICT curriculum depends on the regional authorities. There are some requirements to include (65% of the whole curriculum) ICT into curriculum which are compulsory for all centers. The first chapter of the Organic Law, adopted in 2006, is devoted to Adult Education and defines its main objectives as being to acquire basic training and to facilitate access to the different modalities of the Education system. There are joint initiatives or programs with other institutions (especially the town council or regional authorities) in other areas but not for ICT.

Turkey

Adult education activities are provided mostly by government institutions, the private sector and increasingly by non-government organizations. However, data on lifelong learning activities of non-government organizations and the private sector are not collected systematically. The population of adolescents is proportionately very high in Turkey and the ICT policy of the Ministry of National Education generally focuses on this group. ICT equipment and internet access in

schools has increased considerably, even though the ratio of students per computer is still not comparable to the European Union average. The General Directorate of Apprenticeship and Non-formal Education under the Ministry of National Education, is the largest provider of non-formal education, and has the broadest organizational network with more than 900 Public Education Centers across the country. ICT in adult education is a relatively new subject in Turkey in terms of public education. Public education centers hold responsibilities for introducing ICT to adult learners and regularly offer computer literacy courses to adults. The policy of the Ministry of National Education is to support the introduction of ICT to adult learners. To achieve this goal, an Educational Technologies Directorate was established in 1998. There has been a continuous effort to build sustainable ICT partnerships between the Ministry of National Education and non-government organizations.

Responsibilities for ICT in adult education are shared at national, regional, and local level in a variety of ways across the participating countries. Although in some of the countries, especially the new member and candidate countries, firmly-conceived national strategies for adult education remain in an emergent state. The drive to develop in line with European Union goals, policies and standards on lifelong learning is now creating opportunities for innovative approaches everywhere. More work is needed to establish the real value of integrating new and popular applications of ICT within adult education frameworks. In particular, the contribution to the spectrum of adult education to be made by the non-formal/informal sector and the plethora of institutions which comprise it this requires continuing attention and identification of innovative practices and beneficial impact potential in order to strengthen the already compelling case for public investment. All countries indicated that different bodies are responsible for policy implementation with the overall responsibility being at the ministerial level, sometimes regional government level and then action or implementation responsibility being taken by a range of partners – even including private companies (i.e. network providers).

Most of the participants from the different countries identified that there was a national level ICT strategy or program. However, it was also indicated that there was no specific ICT in adult educa-tion policy. In addition, some countries indicated that the general ICT policy included statements of equity of educational opportunity with respect to and through the use of ICT. While partnership frameworks among government-run adult education institutions, voluntary/non-government or-ganizations and private stakeholders are well established in some countries, in others this trend remains nascent. Policies have in the main not yet succeeded in overcoming the somewhat frag-mented nature of adult education provision in this respect and the optimal matching of high qual-ity provision to user demand remains some ways off.

ICT in the adult education curriculum

Significant levels of ICT integration are reported across the participating countries, especially within formal education and those institutions providing eLearning as a specific subject integrated within specific subject disciplines or as an enabling skill. However, specific data and impact studies for the adult education sector in this area are not widely available. Increasingly, higher education institutions and other training providers use ICT to provide resources to their students and for distance learning purposes. A number of countries are examining the role of ICT in adult education curricula at a strategic level. In countries such as Italy and Spain, the use of ICT in all areas of education, including adult education, has been promoted for many years.

Across almost all of the participating countries, a high level of autonomy is evident for educational institutions to integrate ICT in teaching and learning. Major limitations identified include finance, ICT skills, curriculum compliance and the Internet security. Most of the centralized governed countries, the goals, structure, content and main didactical principles of general education are prescribed in the National Curricula.

In *Bulgaria,* the general national curriculum framework in which adult education institutions act is devised by the National Agency for Vocational Education and Training (NAVET) and authorized by the sMinistry of Education and Science. The framework of the curriculum consists of the state educational requirements for acquisition of qualifications by profession. It is difficult to say clearly whether the curriculum is centralized or decentralized. The state requirements are detailed and centralized but it depends on the trainer as to how to implement it: minor variations are permitted during this process. There is no national framework for non-vocational education and training. Information concerning the use of ICT for adult training is not readily available. However it appears that private training centers are on the whole are better equipped than schools. They usually provide ICT training either as a separate course or as a component of content specific training. One basic problem lies with the ICT skills of the trainers. ICT trainer, training is provided but for adult education trainers. It is a matter of individual action for which people are frequently ill-prepared. The integration of ICT skills training as a broad transversal approach across other subjects is not yet well established.

In *Hungary,* there is no general national curriculum framework in adult education. Training provision is defined mostly by the needs and expectations of the labour market. Each institution may define its own strategy and course supply, has a different profile and provides courses according their capacity. There is currently no special adult education curriculum. Each institution is able to design the courses offered based on the needs of the market and their experience and knowledge of this. Universities and colleges have built ICT into their timetable as compulsory for all participants and many institutions outside the formal system offer ICT courses at different levels. There is no available data on how far these institutions integrate ICT into their courses or curricula. Institutions which provide eLearning have to integrate ICT but those who do not supply these kinds of courses mainly use technology for emailing with students or enabling written papers to be produced on a computer. A Framework Curriculum for Adult Education has however been established in the last year in order to encourage the modernisation of adult education and to assist in the creation of appropriate environments for lifelong learning, introducing significant changes in the structure of school subjects. With its adoption, important skills for lifelong learning and employment such as foreign languages, ICT skills and communication skills are more likely to be introduced across the whole range of formal education for adults.

In *Italy*, ICT is integrated in adult education to roughly the same extent as at other levels of education. Subjects make more or less use of ICT depending also on the personal skills and wishes of the teachers. Adult classes are mainly held in ordinary schools and make use of the same ICT equipment, although the financial support of private institutions, associations, clubs or agencies like banks or volunteer groups also plays a part.

In *Lithuania*, the goals, structure, content and main didactical principles of general education are prescribed in the National Curricula, organized around individual subjects. The curriculum of individual subjects is defined with respect to their objectives, didactic principles, and themes. The National Curricula determine compulsory and optional subjects for each grade, as well as the number of lessons per subject per week. The choice of topics for each subject is limited. However, a teacher is relatively free to choose the teaching methods and number of hours allocated to a given theme. Current educational practices still centre on academic knowledge and apply traditional didactical approaches quite extensively.

In *Romania*, universities and formal education institutions providing training and qualifications in the ICT domain act within the limits of the national education curriculum. Vocational training programmes for ICT occupations are set out in accordance with the Occupational Standards included in the National Qualifications Frameworks. For all other educational and training activities that are not aiming to provide certification for ICT specialists, ICT is a transversal theme

integrated in accordance with the goals of the learning process and accessible both to the institution and the beneficiaries.

In *Spain*, because of the fact that the whole education system is decentralised; the ICT curriculum is determined by the Regional Authorities, although 65% is compulsory for all technology-oriented centres and courses. Data are available only on ICT use in formal education, secondary and high-school education.

In *Turkey,* the curriculum is determined at national level. There are currently no initiatives between Continuous Education Centers (CEC) at universities and Public Education Centers (PEC). However, instructors from universities often support PEC in promoting ICT to adult learners. Some private companies offer ICT courses to adult learners, as do some universities. Microsoft IT Academy is one the best examples of this type of involvement. However, the participation of adults in these courses remains quite low. A basic ICT course is compulsory in high schools and at universities. However there is no integrated ICT curriculum for adult learners. Although the main ICT policy document states that ICT resources should be accessible to the public, observations indicate that many school administrators have a protective mindset which militates against the public gaining access to schools.

ICT in practice: Computers, games methodology and mobile phones in adult education

Few examples of known uses of games in adult education could be found in the participating countries. In most participating countries little consolidated data is available on computer distribution in adult education, although the availability of ICT facilities and networks such as computer laboratories, high-speed Internet connections and interactive whiteboards and networks in adult education is clearly growing. Data which is collected relates mainly to secondary schools. For example In Cyprus over 1,000 elementary schools (the main infrastructural base for delivery of adult education) were equipped with PCs in 2006/7 and all schools have access to the Internet. Broadband connectivity is spreading rapidly into all parts of Europe and is being extended to public education institutions of many kinds by a variety of means. These include the extension of access to academic 'backbone' networks, through radio, wireless and satellite technologies. Although cost and coverage in some regions remain significant issues, it is becoming increasingly feasible to think in everyday terms about the practical applications of learning which rely upon Internet and mobile communications, for both human and machine interaction and for the use of distributed digital content.

Arrangements for technical and pedagogical support vary across the participating regions. In Romania, technical and pedagogical support is provided by in-service training centres, which are in charge of both running training courses according to the school demands and advising on how to implement projects or activities. Elsewhere responsibility often falls upon individual institutions to make their own in-house or outsourced support arrangements.

Most available studies on the impact of ICT on teaching methodology and learning outcomes in the participating countries focus on secondary education. Impact study results where they exist (e.g. in Bulgaria) point to a positive outcome in terms of schools managers/directors appreciation that ICT tools are making learning more efficient and teachers' work easier, facilitating both individual and cooperative learning and attracting pupils. The main impediments mentioned are technical problems (not enough computers, or old equipment) and insufficient educational tools (e.g. software applications).

In *Bulgaria,* games methodology has been used mainly with children in primary schools and no examples were found of the use of mobile phones in adult education. If such methodologies are implemented and mobile phones are required, the number of possible learners could be restricted

initially, owing to the underdevelopment of 3G networks (available to only 25% of the population) and the cost of mobile devices (e.g. almost 0,30 Euro per minute for video chat). A further barrier is the lack of access to equipment/devices in the classroom. Teachers and trainers in the formal education system are poorly paid and may not be aware of the applicability of new technologies owing to lack of experience, in the classroom or otherwise.

In *Hungary,* both games-based and mobile learning methodologies are new concepts and awareness rising would be required before making a judgement on barriers, although the affordability of hardware is a potential matter of concern. The openness of citizens to new approaches has been cited as a potential advantage.

The main exception to the general picture is *Italy* where there is use of didactic games for adult (including migrant) language learning and in support of social skills, learning for European computer driving license (ECDL). Educational game repositories are also in existence (e.g. Ludoteques). ICT has become a cross cultural subject and has influenced all curricula and syllabi. It was also reported that lesson planning and teaching methodologies are affected by ICT on a voluntary basis among teachers across a range of subjects; however there are also teachers of technical subjects who do not use ICT at all. .Game methodology is encouraged, but there is not yet a specific responsibility for its general education, although a focus may be emerging within the training system. Mobile phone usage is very high compared to fixed telephone lines since there is strong competition among provider companies. National Internet usage is around 34% and ICT application in schools is low .Games methodology is encouraged, but there is not yet a specific responsibility for it general education, although a focus may be emerging within the training system.

In *Lithuania*, barriers to the deployment of ICT include teacher-level factors such as lack of ICT skills and follow-up support for newly-acquired ICT skills. School-level factors reported include lack of suitable educational software, limited access to ICT and limited project-related experience. The use of mobile phones is not provided for within the curriculum. The use of games as a specific teaching method is included for the Introduction of Information and Communication Technologies into the Lithuanian Education for 2005–2007.

In *Romania,* there are no identifiable barriers to games methodology in education, other than factors emerging from the way games are perceived in the context of education both by trainers and learners and the current lack of a use base.

In *Turkey,* games methodology (with or without ICT) is quite new. There some barriers exist to integrate ICT and game methodology into the curriculum. These barriers are: time limitations, pressure to cover the curriculum, lack of funds to purchase or upgrade hardware and/or software, limited numbers of Internet connections, limited time for training on technology or for a developing a curriculum tailored to computers, support in schools is lower in rural as compared to urban schools, a lack of ICT competence among senior teachers and a lack of ability to integrate ICT into courses, and cultural bias against games due to negative perceptions including violence, waste of time etc.

Availability of online learning resources and tools

The emergence of such resources is evident in all participating countries. Most participating countries have also established significant content repositories to support learning. Most participating countries boast a considerable array of eLearning services, virtual learning environments projects and applications, many of them based in regional universities and state schools, some provided centrally by ministries. The Moodle course management system, a free,

open source software package, designed to help educators create effective online learning communities, also has a significant user community, for example, in Hungary and Italy.

The issue of access to appropriate ITC resources such as hardware, software, Internet access and funding for operational costs was raised by a number of countries. Providing adult learning and training centres and schools in general with the necessary material equipment, equipping all classrooms with hardware/software and Internet access covering on-line costs, was also stressed. It may be necessary to develop more flexible models for financing ICT equipment and its maintenance in the long term. Such models would need to take into account different stakeholders in the information society, such as local authority educational organizations, parents, industry and researchers.

In *Hungary*, the major eLearning programmeme, Sulinet, was initiated by the Government in the mid-1990s. The programmeme aimed to help provide equal opportunities for students, create an 'open school' and establish a schools Internet infrastructure by developing the central provision of teaching content.

In *Italy*, the Ludoteca per Adulti ed Anziani "Carpe Diem" is a games repository for adults and elderly people.

In *Lithuania,* a project to train teachers in ICT implementation for vocational training, prepared by the Centre of Information Technologies of Education (CITE) in 2004 for funding by the European social fund during 2005-8 aims to train about 3000 teachers from vocational schools. Teachers learn how to use learning objects and virtual learning environments during lessons and for distance learning including the acquisition of learning objects for 12 vocational training areas.

In *Romania***,** a number of portals offer learning resources for formal education and vocational training these include those providing: online courses in fields such as ICT, business and foreign languages; information on the use of ICT in education; directories and links to educational authorities, institutions and private companies offering online training; information on educational and job opportunities and resources for trainers and teachers; and information about and access to educational software.

In *Spain*, the participating Autonomous Community has a platform for access to on-line courses, managed by the Regional Authorities who also cooperate with a private provider to deliver additional resources, in addition to the Ministry of Education's national platform for online learning.

In *Turkey*, the General Directorate of Education Technologies at Ministry of Education is the responsible authority. There is a state run website for k-12 schools which contains math, physics, biology, and chemistry lesson plans, activities, and multimedia based resources such as graphics, animation, and simulations.

CONCLUSIONS

ICT has a crucial role in enticing adults into learning. Therefore, it is one of the main tools both for communication and dissemination facilitated by the European Agency. Therefore, the purpose of the study is to identify potential uses of ICT in adult teaching of selected European countries. The status of ICT use, policies, practices, services and issues in eight Europe countries are also investigated. The national or regional policies in place, the curriculum framework ICT use in practice, availability of online learning resources and tools, reflections, insights, and challenges were investigated by conducting a survey of adult trainers. Furthermore the information about ICT

in educational practices such as facilitation of computers games, game methodologies and mobile phones practices in adult education are examined. The study provides the main findings from the country-based overviews and establishing a resource bank of information relating to ICT in adult education practices, key issues in policy and practice, ICT infrastructure, policies and trends in ICT in adult education.

Most countries indicated that there was no specific ICT in adult education policy and that the general ICT in education policy for their country included adult education and training provision. In addition, some countries indicated that the general ICT policy included statements of equity of educational opportunity with respect to and through the use of ICT. The effective deployment of ICT has an ever-increasing profile within national strategies in Europe both as a means of effectively reaching a higher proportion of adults and as a means of stimulating and motivating new and more flexible kinds of learning. Across almost all of the participating countries, a high level of autonomy is evident for educational institutions to integrate ICT in teaching and learning. Studies on the impact of ICT on teaching methodology and learning outcomes in the participating countries identify technical problems among the major impediments (not enough computers, or old equipment) and insufficient educational tools (e.g. software applications)

The results of this study also suggest that although in some of the countries, especially the new member and candidate countries, firmly-conceived national strategies for adult education are only now beginning to emerge, the drive to develop in line with EU goals, policies and standards on lifelong learning is now creating opportunities for innovative approaches everywhere. The effective deployment of ICT has an ever-increasing profile within these strategies. Likewise broadband connectivity is spreading rapidly throughout Europe and is being extended to public education institutions of many kinds by a variety of means, including those hosting adult education. Furthermore; the data suggest a growing trend in ICT use in adult education across Europe.

Few examples of known uses of games in adult education could be identified in the participating countries. There is however a need to assess how the value and potential of games in adult education curricula can be promoted successfully to a wide and fragmented target audiences and further how games-based learning through less formal (e.g. cultural) institutions can be used to complement the objectives of a more formal skills agenda by reaching those people in the community which the formal sector does not currently reach. Improved analysis of the technical and pedagogical support needs of teachers in adult education in implementing ICT-based games (including ways in which use might be made of the burgeoning e-content resources available), together with the development of a better understanding of impact assessment issues, are also important requirements. The plethora of information available on the web is overwhelming, and both adult students and adult trainers need to be taught how to manage and use it effectively.

FUTURE SUGGESTIONS

The current study revealed issues and implications in ICT in adult education that need to be looked at by policy makers, researchers/developers and information providers in more depth. The following suggestions may give an insight not only into areas of present but also future need.

There should be a clear focus upon the educational context, cultural and pedagogical as well as ICT development. There is also a necessity for more efficient cooperation between institutions.

Information on ICT policy, its implementation in practice and its evaluation in other countries was seen to be of high importance. An exchange and reflection upon policy information was seen as an important aid to the learning process at a European level. Therefore, examples of policy

documents regarding ICT in adult education from different countries should be available to related institutions.

Concrete examples of projects dealing with ICT in educational settings, practical information on the latest hardware and software developments, examples of innovation in teaching strategies that could be transferred from one country to another, examples of successful projects, innovations and successful practices in ICT should be shared across Europe through conferences, blogs, web sites, and libraries to making adult trainers aware of the possible uses, resources and the latest developments of ICT in their curriculum. Furthermore, building an online network (discussion groups, list servers) in Europe between teachers working with different adult education networks could improve cooperation and information exchange. Both private and formal adult education institutions should develop clear strategies to address the issues raised by these technologies. Furthermore, adult education institutions should develop the potential uses of ICT-based games and mobile devices in adult learning. The various results should be made available to policy makers and teacher educators not only in each participating country but whenever requested.

ICTs provide a great opportunity for adult education and lifelong learning centers in European countries to improve their training and teaching processes. The results provide that most of the adult education and lifelong learning centers in surveyed European countries possess basic ICT infrastructure such as Local Area Network (LAN), internet, computers, video, audio, CDs and DVDs, and mobile technology facilities that form the basis for the establishment of e-learning. It is argued that, adult education and lifelong learning centers should adopt ICTs and mobile media (e.g. mobile games) to improve adult teaching and learning processes. Pedagogical, technical and cost issues should also be taken into account for each specific technology when integrating ICTs into adult teaching and learning practices.

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Appendix A

Questionnaire for ILGRECO Partner Countries Adult Education Organization Trainees

Dear participant:

The objective of this survey is to establish the baseline on the status of use of ICT in Adult Education in the partner countries of the ILGRECO project.

The main topics of this survey are:

- The national or regional policies in place for the use of ICT in education
- The curriculum framework for ICT
- ICT in practice
- ICT related research

Procedure

With each question you will find:

- a **"text section"** where you can write your text,
- a **"note section"** where we ask you for references, supporting documents, quantitative data, URLs.

Please send us all documents, you consider important or refer to in the questionnaire and that are not accessible via an URL with the answered questionnaire by **email.**

Please make sure you cover the questions in sufficient detail.

Thank you for your time in providing this information!

ILGRECO Team

1. NATIONAL POLICIES FOR THE USE OF ICT IN EDUCATION

Question *1.1.*

Please describe in brief how responsibilities for ICT in adult education are shared in your country at national, regional, and local level (centralised, decentralized areas of provision, main actors)

Text 1.1.

Note 1.1

Question 1.1.

Please provide a summary overview of the overall ICT policy in adult education and name the current and new programs, their main aims and how they are implemented.

Text 1.2.

Note 1.2.

Question 1.3.

Please briefly describe policy programs or initiatives concerning **broadband projects** *for adult education using high-speed internet, usually more than 2MB/second.*
Text 1.3.

Note 1.3.

Question 1.4.

Please mention policy initiatives/programs designed to improve linking between adult education centers, and external organizations (community organizations, museums, libraries, archives) involving the use of ICT for both formal and informal learning. Please also mention current (successful) practice in this type of collaboration.

Text 1.4.

Note 1.4.

2. ICT IN THE ADULT EDUCATION CURRICULUM

Question 2.1.

Please describe the general national ICT curriculum framework in which adult education institutions act (open, goal oriented curriculum, centralized/ decentralized curriculum?)

Text 2.1.

Note.2.1.

Question 2.2.

How is ICT integrated into the adult education curriculum?

Text 2.2.

Note.2.2.

Question 2.3

Please describe recent, ongoing or future curriculum reforms in your country. Please mention the reasons for the reform, since when the new curriculum is in place, implementation procedures, major changes to the previous curriculum and new curriculum aims.

Text 2.3.

Note.2.3.

3. ICT IN PRACTICE

Question 3.1

In your country is there any evidence of barriers affecting the use of:

Games methodology in education

Mobile phones in education

Text 3.1

Note.3.1

Question 3.2.

Regarding ICT integration in everyday adult education practice, when can the institutions make autonomous decisions and in which matters are their decisions guided or limited?

Text 3.2.

Note 3.2.

Question 3.3.

How is ICT actually integrated in adult education institutions (ICT in certain subjects, across the curriculum, external/ internal institution projects)?. You can refer here to policy recommendations and or results from surveys in the field.

Text 3.3.

Note 3.3

Question 3.4.

Please report on any known uses of games in adult education in your country?

Please report on the projects implemented in your institution focused on ICT and/or game

methodology and/or using mobile phones.

Text 3.4.

Note 3.4

Question 3.5

Please report on the availability and use of online learning resources, tools and provision of virtual learning environments by institutions in your country. (Please mention the most used ones)

Text 3.5.

Note 3.5

Question 3.6

Are you aware of any learning resource repositories which are in use in your country? Who are the people in charge that could be contacted for further information on the repositories?
Text 3.6

Note 3.6

Question 3.7.

What kind of computer distribution (Internet connected computers in the classroom, computer labs, use of laptops, handheld devices) is recommended and/ or the reality in adult education institutions?

Text 3.7

Note 3.7

Question 3.8.

What kind of support (technical and pedagogical) is available within adult education institutions for their use of ICT? (For example: is the ICT administrator a figure present in every institution and at every institution level? What are his/her tasks? How is the technical support organised?)

Text 3.8

Note 3.8

4. RESEARCH AND ICT

Question 4.1.

Please point to (case) studies on the impact of ICT on learning outcomes in your country? Please summaries shortly the results of the study.

Text 4.1

Note 4.1

Question 4.2.

Please point to (case) studies on the impact of ICT on lesson planning and teaching methodologies in your country? Please summarise briefly the results of the study .

Text 4.2

Note 4.2