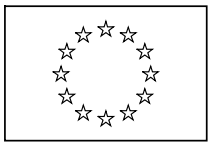

EUROPEAN COMMISSION

Directorate General for Education and Culture

Vocational training

Multimedia: Culture - Education - Training

Brussels, 19 November 2004

EAC-B4/CH D(2004)

EDUCATION AND TRAINING 2010 PROCESS

GROUP C (ICT WORKING GROUP)

Report on Mapping of recommendations

Synthetic version

Approved by Group C meeting on 19 November 2004

TABLE OF CONTENTS

Executive summary

In order to bring ICT integration into education to the best level of practice possible in each country, four recommendations had concluded the 2003 Report of the ICT Working Group ("Education & Training 2010" program) on "good policy" practices. Following a gathering of information in member countries, this document presents briefly a selection of concrete examples providing information on how to implement each of the recommendations:

(1) Linking ICT implementation to long-term education objectives

Whether ICT integration is done through large-scale inclusive policies that have a national and multi-year framework, and that aim to mainstream ICT, or through small-scale regional policies that can organise new partnerships, mobilise new stakeholders, as well as attend to the specific needs of local communities, fundamental educational goals are essential to ensure long lasting involvement of educational actors.

These goals, insufficiently present in ICT policies, concern, for example, the acquisition of basic skills and knowledge, such as reading, writing, arithmetic, critical thinking, or disciplinary skills and knowledge; but also more encompassing objectives such as developing responsible citizens, who have to cope with scientific challenges and ethical issues.

Fourteen examples of concrete actions from eight different countries are presented for the first recommendation.

(2) Attending to the needs and demands of educational actors involved with ICT by developing new services

Current ICT integration into education is focussing attention on the formal and non-formal contexts of learning, on their organisation, on the time and space environment as well as on the heart of learning, knowledge itself. New support services are required in order to ease the use of ICT and to multiply the achievable pedagogical gains, from services that facilitate the use of technological equipment, to services that ensure Internet security; and to services that provide a better personalisation of the learning process in guiding, coaching, and tutoring individual learners.

Twenty-seven examples of concrete actions from twenty different countries illustrate this recommendation.

(3) Training educational actors for change with ICT

With the introduction of IC technology frequently preceding the training of teachers, most courses and workshops for teachers had initially focused exclusively on earnestly needed technical skills. But pedagogical and didactic issues rapidly came to the forefront and are now being addressed.

Furthermore, training in the educational use of ICT is being offered not only to teachers, but also to headmasters and even to parents, as facilitators and peripatetic teachers are put into place.

Twenty-three recommendations from seventeen countries provide concrete examples of ongoing actions.

(4) Developing evaluation, measuring results and linking ICT educational use with research.

Research, evaluation, sharing of results and promotion of best practices is essential if educational actors are to produce correct appreciation of good practices, evidence of improved academic and learning achievements and basically enlighten decisions, implementation choices and educational priorities.

Three types of actions are particularly targeted in this recommendation: evaluation, dissemination and interaction with research. Twelve examples from ten different countries illustrate this last recommendation.

Each example was reformatted (and sometimes translated) to allow for a brief homogeneous presentation with titles, key words and hyperlinks to more extensive information. The choice was made to make these new contributions short and easy to read, so that they could be made available to a general public on the site of the European Commission.

[N.B.: The complete document is presently available as a Word file on CIRCA, intranet site of the European Commission: A paper document consisting of a general presentation and the executive summary is also available.]

http://forum.europa.eu.int/Members/irc/eac/accessict/library?

I – Introduction

Following the 2003 Report of the ICT Working Group ("Education & Training 2010" program), the group explored how the four concluding recommendations could be implemented in different educational settings. ICT in education is under growing pressure to deliver the promised gains in terms of education quality, higher learners' achievements and improvements in academic results, as well as increased efficiency (better organization, reduced costs, etc.). It is therefore of the greatest importance to bring ICT integration to the best level of practice possible in each country and to provide educational actors with the most adequate environment. The recommendations have precisely this goal: to facilitate, for Ministries and educational actors, the understanding of crucial issues and the implementation of pertinent actions and decisions.

Each of the four recommendations:

(5) Embed ICT policies and strategies into long term educational objectives

(6) Ensure new support services for education

(7) Empower educational actors and train for the management of change

(8) Develop research, establish new indicators and provide access to results,

is introduced with a synthetic presentation and with reference to the different examples relating to it. Building on the previous report, these initial examples address new issues, and also issues that had been omitted, overlooked or underestimated.

Policies dealing with one issue, be it equipment or teacher training or resources, are generally giving way to more encompassing policies that attend to several of these components. Because the needs are greater than the investment resources available, policies therefore tend to organize one sector at a time: for example, attending to one type of actors involved, or one geographic area, or one school level, and in so doing, take into account all the components – training, infrastructure, resources, services - , in order to maximize the probability of successful implementation.

Concrete examples of actions already corresponding to the recommendations were identified and are proposed in this document. The presentation of these initial examples was particularly discussed in order to achieve the best balance between providing all the pertinent information without overloading readers so as to maintain interest. In order to develop exchanges that will stimulate better educational ICT integration into the different countries, information provided here is organized in seven categories: reference number and title, key-words, origin, actors involved, description, website, and key informant.

II - Four strategic recommendations for integrating ICT into education

Each recommendation is hereafter presented with references to some of the examples that can be found in the complete document on line (CIRCA)

1st recommendation: Embed ICT policies and strategies into long term educational objectives

As the third decade of ICT integration into education begins, inquiring minds – stakeholders, parents, decision makers and teachers – are wondering what are the goals pursued with the integration of ICT in education. It is increasingly recognised that the main challenge in the integration of ICT is not providing equipment, but developing educational uses that will effectively attend to fundamental improvements in education and to current or new learner needs. Embedding ICT policies and strategies in long-term educational visions is becoming more and more urgent as educational actors are asked to account for the important investments made in time, energy and money for equipment, training of teachers, for production of resources and in mastering the use of this technology.

The general rationale for integrating ICT in education often lies with the growing importance of ICT based resources and services in society as a whole, the complexity of the tools available, and the pressure to make education more cost effective and employment compliant. Nevertheless, the role that ICT plays in fostering production in the economic system should not obscure the role that ICT can play in citizenship and personality building in education systems. In order to play this cultural role in education, IC technology needs to be embedded in long term educational goals, such as the preparation of students to live in a complex society, capable as citizens of making informed scientific choices; and of being responsible consumers and producers in this society. The transformations in the access and the production of information brought about in society by the use of digital technology calls for rethinking the role of media and technology in education, and possibly revisiting the very foundations of knowledge, its transmission and acquisition.

Whether ICT integration is done through large-scale inclusive policies that have a national and multi-year framework, and that aim to mainstream ICT, or through small-scale regional policies that can organise new partnerships, mobilise new stakeholders, as well as attend to the specific needs of the local communities, fundamental educational goals are essential to ensure long lasting involvement of educational actors. These goals, all too seldom present in ICT policies, concern for example the acquisition of basic skills and knowledge: reading, writing, arithmetic, critical thinking, etc.; of disciplinary skills and knowledge; but also more encompassing objectives such as developing responsible citizens, actors who can cope with scientific challenges and ethical issues, and politically conscious voters.[1]

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[1] "Classic or basic goals" in the presentation of long term educational objectives that could fruitfully be revisited are the "four pillars" – learning to know, learning to do, learning to live together, learning to be- of the *Learning, The Treasure Within*, (1996) Report of the UNESCO International Commission for the Twenty-first Century, chaired by Jacques Delors, or The Seven Fundamental Issues that Education Must Address in the Future (Les sept savoirs nécessaires à l'éducation du futur", par Edgar Morin, (1999), UNESCO.

Long-term educational goals are usually implicit and as such are rarely questioned, in order not to disrupt the assumption that there is a general adherence to them. Making them explicit in order to establish ICT objectives and priorities is no easy task. Some countries have however produced such a basis for their ICT policies and exploring their action can facilitate the work to be done by others.

Besides these fundamental educational goals, there are three types of educational objectives that can be specifically facilitated by the integration of ICT:

- Objectives that implement new learning paradigms, such as learner centred and constructivist approach to knowledge, life-long learning, multicultural and multi-lingual approach to knowledge, active learning through simulation, micro-worlds and multimedia; collaborative learning through networking;
- Objectives that attend to new educational needs such as providing a basic scientific knowledge and critical awareness for all, developing special needs education, or answering the needs of learners whose situation require individualised online learning, such as high level sportsman or hospitalised persons;
- Objectives that foster employability in an information society through the development of digital literacy for all learners, competences which need to be defined not only according to the needs and requirements of the IT industry, but also meeting the requirements of managing technologically based information in all professional sectors.

These new educational objectives need to be recognized and validated with national standards adequate to the kind of objectives the new learning situation implies.

Some policies are already providing the long term vision, translated into large-scale objectives: [Austrian policy 'efit-Austria', is implemented through 180 specific projects, covering eight fields of activity, such as "new media for teaching and learning, IT-vocational qualifications, 'infoportals' and e-content providing, IT at universities, IT in adult education, IT and culture, IT-administration, IT-infrastructure"]. The use of ICT needs to be assigned to top priority missions such as training of teachers, and developing knowledgeable users of ICT.

More policies are needed to move education towards an active learning and knowledge construction approach, to foster digital literacy for an information society, (1.13: ICT as a compulsory discipline for 12-14 year old students or 1.4. LizzyNet for girls to overcome gender bias in IT professions), or to develop learning for a multicultural society through online learning (1.5.Tackling innovative intercultural contents and approaches, 1.7 focused on foreign language acquisition), while helping to raise academic standards (1.12, Deploying ICT in clusters of educational institutions).

2nd recommendation: Ensure new support services for education

The development of computers – as their name indicates – was due to the possibility and necessity of calculating numbers by automata, and not due to the aim of teaching and learning. Even when by technological progress computing was widened to handle digital multimedia interactively, computers didn't change automatically into pedagogical tools. The development of the educational potential of these very promising machines cannot be achieved by merely buying computers for students and teachers.

Teachers are to be prepared for making use of the new opportunities in their classrooms. While recognising that computers do not – by themselves and by some miracle – change the way we learn, current innovations bring further attention to the formal or non-formal contexts of learning, to their organisation, time and space as well as attention to the focus of learning, knowledge itself.

Given these challenges, new support services are to be installed in order to lighten the use of ICT and to multiply the achievable pedagogical bargain. But whereas the need for teacher education is very well admitted, new supplementary support services required are not sufficiently taken into account and in the focus of decision-makers. Therefore necessary contributions of teacher education programmes which foster ICT in classrooms are not discussed here. The following sections are limited to brief characterisations of necessary additional facilities and point out good examples for such services implemented in member states.

What is meant by new support services?
It seems adequate to differentiate between five types of support services:

- facilitating the use of technological equipment;
- providing for contents or 'contexts' which foster educational uses or projects;
- ensuring or at least improving security while using ICT;
- providing a better personalisation of the learning process in guiding, coaching, tutoring individual learners (teachers or students) through educational pathways which are made specific to their needs.
- Organising local polyvalent centres that assure access and availability of learning environments and resources (school libraries, Competence Centres, nodes (Holland), universities.

1) Services facilitating the use of ICT

As far as it is not an aim of classroom activities to learn about ICT but to teach and learn with help of ICT, teaching and learning processes must not be harmed by technical problems. Teachers and students who cannot rely on equipment ready for operation won't like to make use of it:

- A procedure or strategy has to be defined and maintained which takes care of the implementation of ICT into the educational programme of each school. The preparation for defining such a strategy is less a teacher's than a headmaster's task - together with the ICT coordinator at school. It is also, in some cases, a local or regional strategy, as the school may design its ICT-related strategies together with the local authority or with Universities or cultural institutions nearby. Therefore it is mentioned here ("strategy-support").
- An intranet is in general indispensable for supplying all computers of a school with access to the internet. But provisions are to be defined and to be installed ("intranet-support") professionally so that:
    - those computers and additional hardware-components are in a well defined state at the beginning of each lesson ("availability-support");
    - ad-hoc-problems can be discussed with and - if necessary - transferred to competent partners ("help-desk-support");

- additional hardware and software is embedded into the school-intranet professionally ("consistency- and compatibility-support");
- the logical structure of the school-intranet is defined according to pedagogical demands and not vice versa ("pedagogical-privilege-support").

- Good examples of services facilitating the use of ICT are implemented in different Member States

Concerning "strategy-support":

- ICT ABC for school leaders - A Norwegian service built on a guidance package to enable schools to develop their own ICT strategy. Norway, example 2.21.

  Nónio Competence Centres - Portuguese educational centres acting as research units with expertise in the pedagogical integration of ICT and as advisors of schools to implement projects based on ICT. Portugal, example 2.22, Under this strategy-support, one should bear in mind specific regulations, as developed in Sweden for inviting any school that was wishing to get funding for ICT to think about the educational integration of ICT

- Concerning "intranet-support":

School networks should support - not annoy teachers: the challenge of installing a LAN to answer pedagogic demands. Germany (Baden-Wurttemberg), example 2.6.

2) Services providing for educational contents or 'contexts'

Of course for most of the topics relevant at school the internet offers more materials than can be dealt with in classrooms – but concerning "pedagogical economy" most of those materials are too unspecific. Therefore there is a clear demand for pedagogically defined services which should either be provided nationwide or even European wide (for economic reasons, negotiation with content providers may be easier at this level) or be adapted to the local and regional educational contexts. It is interesting noting that 'small portals' are, in some cases, more successful than 'big portals'. In a same way that there are many radio stations, one must bear in mind the importance of content diversity. In terms of portals, this may involve:

- Big portals where of common interest are offered, and where the quality of resources is guaranteed by public or private publishers of educational resources. ("information-support");
- Smaller portals which are based on the inputs provided by teachers themselves and by free exchange or resources, for example under disciplinary or sectorial groupings;
- Chat-rooms and forums for synchronous and asynchronous guided discussions about pedagogical and educational topics ("communication-and-collaboration-support"); this remains difficult to sustain if there is no collaboration framework and possible related funding;
- Platforms where results of teaching and learning processes can be presented and discussed – both by teachers and by students ("presentation-support").

In this area of services, there is more and more evidence that basic information is not enough and that teachers should be given some guidance (pedagogical outlines or 'fiches') in order to provide an educational framing of the given information, for example through showcases.

This is why emphasis has to be given on ‘contexts’ of learning as much as on ‘contents’. The better these context-oriented supports are the more in-service-training of teachers is lightened.

Good examples of *services providing for educational contents for* the use of ICT in classrooms are implemented in different Member States, concerning "information-support":

- A pedagogical server for information and resources. Belgium (French Community), example 2.5;
- Digital Knowledge Space - A French initiative associating private and public educational resource providers with online access. France, example 2.6;
- Icelandic Educational Gateway. Iceland, example 2.7;
- Services offered by the Swedish Schoolnet: information centre, library and news agency. Sweden, example 2.2;

Concerning "communication-and-collaboration-support":

- Sektornet: supplying all schools with high-speed connections to the internet and a national conferencing system, SkoleKom. Denmark, example 2.16;
- Sharing information to build a community: the Digital Class Book. Hungary, example 2.26.

3) Support improving security while using ICT

With respect to teaching and learning processes "security" has different dimensions:

Of course teachers ask for security concerning the "availability" of those ICT-components which are known to be installed at their school and which should work when they and their students want to use them in classroom.

Another demand for security results from the fact that one never can be sure what findings an internet-oriented research will offer – concerning sex, crime, violence, fascism, racism and so on. Therefore a qualified variety of filters should be offered which can be installed according to pedagogically defined decision-making ("filter-support") on national or local basis.

Teaching and learning by using an intranet bring up the question of how privacy of individual and group-work can be protected without installing undue obstacles to cooperation and communication ("privacy-support").

These indispensable requests for security should and could be coped with by defining intelligent installations of intranets at school. Nevertheless methods and tools have to be developed and offered which fit for the specific pedagogical demands.

Good examples of *services improving security while using ICT* implemented in different Member States are:

Concerning “filter-support”:

- Creation of School Network. Greece, example 2.19.

Concerning “privacy-support”:

Examples are not yet provided here but many projects within the Safe Internet Programme of DG INFSO (http://www.saferinternet.org/) do include such services.

4) Services providing a better personalisation of the learning process

Such services should help educational pathways become more specific to individual needs of children or teachers. There are still too few examples, such as 2.29 KICK, a Swedish help programme providing service to teachers and headmasters concerning development of competence.

This fourth type of services develops new sorts of pedagogical activities, such as individual learning activities, guidance and coaching activities, virtual meetings of students with teachers, pedagogical follow-ups, twinning with experts, activities that organise social interactions between educational actors. The new environments that are being established with the integration of ICT plead for inventiveness, open minds and renewal of pedagogical situations.

5) Services organising local polyvalent centres that assure access and availability of learning resources and environments.

These services attend to the new needs of lifelong learners who need to find educational resources online but also locally and easy to manage. Access to local existing resources such as municipal libraries, museums, associations, experts, needs to be organised and facilitated for the learner. Bringing in the learning environment new actors and new competences can potentially enrich the learning experiences of all educational actors.

3rd recommendation: Empower educational actors and train for the management of change

1) Training teachers:

In most countries, introduction of ICT (mainly technology provision) in public and higher education was initiated before teacher-training courses on *methodological issues* of using ICT in education had been established. In the nineties, when multimedia computers made it possible to teach in a variety of disciplines, non-IT teachers received basic training in computer skills only. As a consequence, many of them decided to use ICT for information search and personal communication but not for teaching and assessment or school management. By the turn of the century, most EU countries observed and satisfied the need for a constant and up-to-date training in *"digital didactics"* – means and methods of computer-supported education.

While post graduate and in-service courses on ICT use are abundant and often compulsory, ICT-related pre-service courses are still restricted to ICT skills in many EU countries. In others, examination in computer-supported, discipline-based teaching is one of the graduation requirements for future teachers. In service training courses include the following components:

- License for ICT competency;
- Courses for trainers or head teachers
- E-learning methodology courses for teachers

Features of successful courses include high quality, tried and tested teaching materials, a wide interregional group of on-line tutors, training paths (available on-line) for new professional profiles, and development of a set of adaptable didactical models.

Concerning roles, peer support and working in teams (1.2. Sweden ITis), facilitators (3.3 DK) are other success factors of training courses for teachers. By providing continuous support within the school such as *peripatetic* teachers (2.8. Malta example), and teaching assistants (England) long term effects in enhancing learning and teaching by ICT and changes over time are also more probable.

Danish and Hungarian surveys show that teachers are ready to change their methodology as a consequence of taking school based, intensive course, and even senior teachers are motivated by opportunities opening up with this new technology.

Examples: Pedagogical ICT Drivers License (3.3. Denmark), FADOL and initiative, SOLe project (1.8. Italy), discipline-based pre- and in-service training (1.13. Hungary), Information Technology in Education for School IT Coordinators (3.14), Supporting the quality use of ICT in schools (3.4. Estonia, Teach to the future), Distributed learning – computers in teaching (3.6.Iceland), ICT Support for Learning and Teaching (3.7. Sweden), Education for the Information-based Lithuania (private-public partnership, 3.18. Lithuania)., pre-service training programme of the UNESCO Centre for ICT in Education, Hungary and in-service training programmes of the Hungarian Schoolnet.

2) Equipping educational actors to cope with the changes involved in the implementation of ICT:

Practically all EU educational systems have national ICT infrastructure diffusion policies (national school nets providing Internet connection and validated content, distribution of school laboratories, innovation grants to support new models of teaching etc.)

According to the OECD studies and SITES2, key actor in ICT implementation is the school leadership. In many EU countries, campaigns regularly target school heads in two ways. Involving them in the ICT culture as active users ("laptop donation"), and inviting them to apply for grants to improve their school's ICT-related infrastructure and Internet connectivity. Their willingness to innovate through the use of computers seems to be dependent more on the general innovatory potential of the school than the quality of equipment available. In-service training courses, messages delivered at conferences and, more convincingly than anything else, growing demand of parents seem to have persuaded many of them to integrate in their pedagogical work some use of ICT.

School staff members in general education in most EU countries seem to be offered an abundant selection of in-service courses on educational computing. Comprehensive programmes leading to certificates are also available in most training systems.

Research suggests that after a long period of ICT penetration and integration in schools there is also a widening gap between teachers. Differences in the adaptation of ICT and the use of it among teachers are becoming more and more visible. Some teachers still have basic ICT needs whereas other teachers have developed a high level of expertise, also through their own efforts. They make innovative use of ICT and engage in project related work. (Ofsted report, 2004, e-watch report)

Some training services provided in the European countries attract specific target groups (3.16. LeaNet for women teacher and student teacher, Germany) or aimed to ensure the same (basic) level for all teachers in the country to guarantee equal standards for all students (3.2. Finland, Ope.fi)

A crucial goal, that is still to be reached, is the shift from the current "teaching paradigm" towards a "learning paradigm". There is also a need of official recognition of the new

pedagogical roles introduced by ICT in teaching and training, as: on-line tutor, on-line teacher, distance learning resource developer, technical staff for laboratories, etc. An analysis of the situation as far as the contracts in education in the various EU members could be interesting to understand how this new roles are gaining "space".

Examples: PUNTO EDU and EXEMPLO projects, Schoolnet Express project, Hungary, SCOOL LIFE initiative, Italian school heads' train on-line, (Italy), Polish Senate Resolution: Regarding Indispensable Movements Preparing Poland for Accession into the Global Information Society, Interkl@sa Programme (Poland), Pedagogical ICT Themes and Facilitators (3.3. Denmark), 3.2. Ope.fi: Three levels of competencies: basic, teaching ICT skills and advanced ICT skills (Finland), Digital Literacy/Competence for all learners (1.2. Norway), Teacher's Computer Literacy (3.5. Lituania).

***3) Making actors aware of the different issues involved in implementing ICT**:*

Problematic issues have come up with the integration of ICT: finances, regulations, ethical and privacy issues, standards and reusability, intellectual property rights and copying, "quality" contents, brand vs. 'open source' software, health risks, etc Actors are made aware of these ICT-related issues mostly through web sites of national school nets, professional journals (paper-based and digital), and regular conferences on educational computing. Unfortunately, the topics listed in this question do not belong to the often discussed issues in these organs. National regulations are communicated to schools through official documents of educational ministries but rarely feature in a forum of communication where their content may be elaborated and discussed.

Most of these issues are complex and educational actors are often not aware of, or not involved in, the decision making process. The standards and reusability issues are typical of these difficulties. Because of the high investment required for the production of educational multimedia contents, it is highly commendable that such contents be re-used and capable of being integrated in different technological settings. However, experience has shown that most standards are not developed in an educational context and are not easy to abide by when producing educational contents. Furthermore, the 'reusability' of learning objects varies from rather obvious, when dealing with simple learning objects such as simulations of physical processes or geographical images, but becomes quite complex when dealing with the humanities, where cultural, linguistic, 'curricular" or even 'esthetic' backgrounds bring into play value judgements, schools of thought or other ideological frameworks.

The use of Open Source software in schools has not yet been taken up by Ministries of education in Europe as a cost efficient and flexible way of implementing ICT in schools. However, in many schools in Europe there are grassroots actions taken (for use cases in schools or regions see special Insight Report http://www.eun.org/insight-pdf/special_reports/Why_Europe_needs_foss_Insight_2004.pdf) However, e-learning programs on these issues often lack official certification.

Examples: Center for Technology in Education (Denmark), post graduate programme for school IT co-ordinators (Poland), Implementing "Internet and Children's Rights" (3.19. Bulgaria); E-learning-Cluster schools (3.17. Austria), WebGUIDES: Empowering teachers for the use of ICT in the classroom (3.10. Germany), SLICT: Strategic Leadership for ICT (3.12. U.K.), Development of media competence (Thuringia, Germany).

4th Recommendation: Develop research, establish new indicators and provide access to results

Educational actors need guidance in integrating ICT into education. They want to benefit from previous and ongoing experience and to develop the best pedagogical practices possible.

This results in an agenda for research, evaluation, sharing of results and promotion of best practices. This work is essential if educational actors are to produce correct appreciation of good practices, evidence of improved academic and learning achievements and basically enlighten decisions, implementation choices and educational priorities.

Evaluation is a longstanding issue with educational ICT. Comparative research (with ICT versus without ICT) has not provided the expected results because of the complexity of human action always involving many factors and because of the inherent differences between pedagogical activities resorting to oral communication and written exercises and ICT based pedagogical activities. There is consequently much work to be done to clarify goals and objectives and establish pertinent criteria and indicators that will help to produce an informed and argument-based appreciation of what is being accomplished.

Three types of actions are particularly targeted in this recommendation:

1. Developing new evaluation paradigms through sharing of methodology, criteria, grids, indicators and results;
2. Stimulating identification, dissemination and adaptation of good models and approaches;
3. Fostering interaction with research.

An initial mapping of some of the examples leads to the above categorisation and to the following examples:

1) Actions that develop new evaluation paradigms through sharing of methodology, criteria, grids, indicators and results

Actions that contribute to a benchmarking framework for evaluation & comparative analysis of cases, ie. policies, projects and integrated actions for ICT in education and training.

Actions that adopt a limited and pilot set of indicators, through a policy oriented dialogue and filtering process, to be relevant to the on-going measuring of progress towards the Common Objectives, while supporting consistency and comparability of results coming out of surveys by European and international institutions – like Eurostat and/or OECD - as well as national authorities and agencies (surveys with schools, households, higher education institutions, lifelong learning providers and companies).

For example, 4.1. A program developing a special evaluation concept for New media in higher education

2) Stimulating identification, dissemination and adaptation of good models and approaches

Actions that cover short-term needs with European surveys addressing the penetration and use of ICT in learning, in a variety of contexts – schools, universities, training centers, cultural and scientific institutions, libraries and museums, home and the corporate sector –, or with surveys that are run by the European Commission's services and agencies.

Actions that develop innovative approaches to promoting good practices, such as 4.2. Competition with prizes, 4.9. ICT Schoolportraits as international evidence of good practice.

3) Fostering interaction with research

Actions that provide an updated insight of European state-of-the-art regarding research, observation and analysis as well as policy evaluation, dealing with ICT and e-learning. For example, 4.3. A Luxembourg Report developing in-depth case studies in schools, 4.5. Developing and action research network for teachers, 4.12. LearnIT, a research programme with doctoral students.

In order to stimulate the implementation of the ICT Report recommendations and to facilitate for educational actors the necessary steps involved in ICT integration, a series of initial examples, of what is being done in the different Europeans countries, has been brought together.

This paper provides information through **concrete examples.** These are "good or best practices", that implement one of the four recommendations. The activities are presented briefly and can be further explored through the provided hyperlink references.

The aim of this document is to disseminate innovative and stimulating ideas, actions, initiatives and solutions that have been experimented in one or more European country and that can contribute to the qualitative and enriching integration of information and communication technology into education and training.

III. List of examples mapping the four strategic recommendations for integrating ICT into education

1st Recommendation: 14 examples

Embed ICT policies and strategies into long term educational objectives

1.1 _eFit-Austria", the Austrian ICT- Policy in education

1.2 ITiS-IT in Schools, the Swedish national Action Plan

1.3 Agency for Flexible Learning (Swedish organisation opening adult education to new learners CFL).

1.4 LizzyNet: a platform conceived for making IT and new media more attractive for girls and young women. (A German Schulen ans Netz project)

1.5 Exil-Club, New media in learning for a multicultural society: an online learning environment that engages with the subjects of exile, migration and intercultural education. (A German Schulen ans Netz project)

1.6 Digital Literacy/Competence for all learners. (A Norwegian programme 2004-2008)

1.7 LOGOS: conversations, languages, ways of speaking. (An Italian projet to develop the integration of young foreigners in the Friuli Venezia Giulia region.)

1.8 SOLe (Sistema per open learning) (An Italian methodological research project about the use of ICT and Distance learning to support micro enterprise owners competence enhancement.)

1.9 Schoolife, an educational project for developing communication between schools and families (An Italian technological and methodological internet platform)

1.10 Pupils' ICT Licence (A Danish initiative where educators explicitly link their use of ICT to long term educational goals)

1.11 Transformation of education with ICT: Becta. (UK national agency for the integration of ICT into learning and teaching, educational institutions and systems.)

1.12 Deploying ICT in clusters of educational institutions: UK ICT Test Bed project.

1.13 Developing the learners' knowledge and skills for the information society: a Hungarian compulsory discipline for 12-14 years old students.

1.14 ICT-AES : national ICT programme (Reforming the Romanian education system to take into account, among other dimensions, ICT literacy for pupils/students and teachers).

2nd Recommendation: 30 examples

Ensure new support services for education

2.1. mySchool!: national educational portal. (A Luxembourg multilingual educational online working environment)

2.2. Services offered by the Swedish Schoolnet: information centre, library and news agency.

2.5 National virtual school project providing networked teaching and studying in basic education, at the upper. Finland

2.5 Supporting students with special educational needs: the information service of the UK's National Grid for Learning.

2.5 A pedagogical server for information and resources (A Belgian French Community server for parents, students and teachers to help implement the strategic plan for the integration of ICT in schools.)

2.6 Digital Knowledge Space - Espace Numérique des Savoirs: A French initiative for providing schools with an online access to private and public digital educational resource

2.7 Icelandic Educational Gateway: a public and private partners collaborative project to provide schools with access to online information and services

2.8 Online Support and Resources. Malta

2.9 Educational multimedia contents. Portugal

2.10 Providing quality software. Czech Republic

2.11 Setting up a Training and Information Center (A Bulgarian project for educational use of ICT in primary and secondary education through collaboration with Dutch experts)

2.12 _ICT at School": a national online service for facilitating ICT in learning and teaching. Holland

2.13 The Finnish Virtual University -

2.14 ICT training for unskilled workers:The Belgian Flemish VDAB project _Aangename kennismaking met de computer"

2.15 A flexible, modular proposal for apprenticeship external training. (Italian open learning space and web based information system for apprenticeship in Friuli Venezia Giulia region)

2.16 Sektornet: supplying all schools with high-speed connections to the Internet and a national electronic conferencing system, SkoleKom. (A Danish example)

2.17 School networks should support - not annoy teachers: the challenge of installing a LAN to answer pedagogic demands. Germany (Baden-Wuerttemberg)

2.18 Attending to the Information Overload: the Slovenian Education Network Services

2.19 Creation of School Network. Greece

2.20 SIO - the Slovenian Education Network -

2.21 ICT ABC for school leaders. (A Norwegian service built on a guidance package to enable schools to develop their own ICT strategy).

2.22 Nónio Competence Centers (Portuguese educational centers acting as research units with expertise in the pedagogical integration of ICT and as advisors of schools to implement projects based on ICT.)

2.23 KICK Competence and information centre. (Swedish help programme, providing service to teachers and headmasters concerning development of competence)

2.24 Simulation game: Hiking across Estonia, an online multimedia simulation for school teams.

2.25 Viten 2: Norwegian Web-based Inquiry Science Environment - develops science education materials combined with classroom evaluation studies.

2.26 Sharing information to build a community: the Digital Class Book, a Hungarian online database project

2.27 Centres for the Validation and Certification of Basic Competences (CRVCC). Portugal.

2.28 Vocational school education at all levels: Basic ICT education in the form of e-learning from the Online School. Denmark

2.29 Emu.dk. Denmark

2.30 Quality assurance and access to information. Denmark

3rd Recommendation: 24 examples

Empower educational actors and train for the management of change

3.1. Strategic action plan for the integration of ICT in schools (2002-2010). _Plan d'action de la charte d'avenir" and FORM@HETICE (French Belgian Community)

3.2. Ope.fi: Finnish national program to improve the ICT skills of all teachers, organized in three levels of competencies: basic ICT skills, educational use of ICT skills and advanced use of ICT in education and organisational settings skills.

3.3. Pedagogical ICT Licence and its superstructures (A Danish national teacher in-service training programme)

3.4. Going beyond basic computer courses and supporting the quality use of ICT in schools. Estonian in-service training programme for teachers.

3.5. Teacher' Computer Literacy (Educational Part) Lithuania

3.6. Distributed learning computers in teaching. Mixed training offered to teachers. Iceland

3.7. _ICT Support for Learning and Teaching": An online master program for teachers. Stockholm Institute of Education, Sweden.

3.8. PROF2000 □ A Portuguese On-line Network of in-service teacher training services.

3.9. Teacher Training in ICT. Italy.

3.10. WebLOTSEN (WebGUIDES): Empowering teachers touse ICT in the classroom. Germany

3.11. PLUTO: a Norwegian Program for Teacher Education, Technology and Change.

3.12. SLICT, Strategic Leadership for ICT: A U.K. national programme for headteachers to address the leadership of ICT in schools.

3.13. Italian school heads train online.

3.14. Information Technology in Education for School IT Coordinators. Poland

3.15. Development of media competence. Germany, Federal State Thuringia

3.16. LeaNet: A portal and a community especially developed for women teachers and women student teachers from all types of schools and from all subjects. Germany

3.17. e-learning-Cluster schools (An Austrian initiative integrating educational targets with administrative change in the implementation of ICT in education)

3.18. Private-Public Partnership Program: _Education for the Information-based Lithuania".

3.19. Implementing _Internet and Children's Rights". (Bulgarian rulings for safe work of students in school computer network and Internet)

3.20. WAVE The Virtual Welding Trainer. France

3.21. Teaching Knowledge Management as a New Communication Skill. Slovenia.

3.22. _INTERNET: Nonni E Nipoti" (Internet/ grandparents and grandsons) Italy

3.23. Integration of Media in ICT education. Italy

3.24 The personal education plan. Denmark

4th Recommendation: 12 examples

Develop research, indicators, access to results and specific fields of application

4.1. Evaluation processes within _New Media in Higher Education" Austria

4.2. MeDiDa-Prix: (A yearly competition of e-Learning products and processes among institutions of higher education from German speaking countries)

4.3. Stimulating the integration of ICT in schools: A Luxemburg Report based on three case studies conducted in high schools (lycées) for CERI (OECD)

4.4. 'Forum New Media', a network of teachers and researchers at universities and fachhochschulen (higher education institutions geared to professional training) Austria

4.5. Researchers and teachers collaborate for an improved implementation of educational ICT: ITMF programme, Danemark.

4.6. PILOT: Norwegian Project for Innovation in Learning, Organisation and Technology.

4.7. VALNET : European Schoolnet Validation Network. Production of a validation methodology for ICT pilot schools. Portugal

4.8. ICT schoolportraits: International evidence of good practice. Holland

4.9. ICT national statistics and studies. Portugal

4.10. Laptops for disadvantaged students: Irish initiative

4.11. Tiger in Focus: an Estonian longitudinal study about ICT use in education

4.12. LearnIT, Learning and IT: The Swedish Knowledge Foundation's Research Programme