



COMMISSION EUROPÉENNE

Direction générale de l'éducation et de la culture

Culture, Politique audiovisuelle et Sport

Multi-média: Culture - Education – Formation

Objective 1.3 Information and Communication Technologies in education and training

The following document results from a “compilation” of the draft questionnaires that have been sent by Member States and countries who participate to the ICT group under one of the 13 Objectives of the “Report on concrete future objectives of the education and training systems”.

INTRODUCTION	3
MEMBER STATES AND OTHER PARTICIPATING COUNTRIES' REPRESENTATIVES	
CONTRIBUTIONS	
BULGARIA.....	4
BULGARIA.....	5
DENMARK.....	7
DENMARK.....	7
ESTONIA	12
GERMANY (Federal level).....	17
ITALY	22
GREECE.....	28
HUNGARY	33
LUXEMBOURG	39
MALTA.....	42
NORWAY.....	45
POLAND.....	52
PORTUGAL	55
SWEDEN	75
SWEDEN	75
TURKEY	87
FRANCE	92
OTHER INTERNATIONAL OR EUROPEAN ORGANISATIONS AND ASSOCIATIONS	102
AGENCY FOR SPECIAL EDUCATION.....	103

INTRODUCTION

Meeting preparation: Finding examples of good policies and good practices in integrating ICT in education and initial vocational education

Identifying “good policies and good practices”

Following our last meeting, the exchange of experiences of ‘good policy practices’ and of ‘good pedagogical practices’ integrating ICT appears as the next phase of our work. As we need to prepare and exchange under **comparable headings** information concerning different levels and different contexts, the following grid is proposed for the presentation of the information. This will facilitate the selection of comparable practices and experiences and the analysis of the different contributions.

How we will use your contribution?

When we receive your examples (1 to 4) of good policy practice and of good pedagogical practices we will use them in order to select thematic clusters and areas for further work at our next meeting.

What are "good practices"

In this report, « good practices » must be approached as « good examples » of educational policies in the field of ICT in education. The involved experts considered that practices are not good, per se. Their value relate to their contribution to what is defined in each context as « quality education » and as « effective systems ».

Each example should then be chosen in relation to that are considered - in given contexts - as contributing to a quality education and to effectiveness of systems. The chosen practices may highlight different options for answering the same issues, or they may highlight different fields of pedagogical or organisational practices such as:

- Quality environments, including proper hardware and software in schools; interactive *learning on-line* materials and educational software, as well as new services ; approaches based on new games and new learning environments.
- Practices in the classroom/the school, especially with a view of integrating ICTs in various subjects, or for pluridisciplinary approaches; a particular emphasis could be given to the pedagogical training of teachers, observation of learning processes/results, the new roles of teachers/trainers and pupils, the way pupils communicate, and the opening up of the school with a view to lifelong learning.
- Use of ICTs in non-formal education, museums, resource centres, social places, for areas such as environmental education ; health education ; art and science education ; media literacy.

Identifying examples of "good practices" in education and initial vocational education: two types of good practices are concerned:

- Good policy practices integrating ICT
- Good pedagogical practices integrating ICT

***MEMBER STATES AND OTHER PARTICIPATING COUNTRIES' REPRESENTATIVES
CONTRIBUTIONS***

BULGARIA

B. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

Course: "Drawing in LOGO environment"
Primary education: elective instruction (Curriculum for Primary school, 1998).
Grade: 3rd to 6th
Duration: The weekly occupation is one hour during the period of five months.

(ii) What are the main intentions in integrating IT in this course or experience?

The aim is to make children aware of the basic possibilities of the computers as an instrument for visualization and image creation and help them acquire basic skills for processing graphic information. The work with various colors, forms and ready images, builds skills for combining, develops aesthetics sense and stimulates the child's imagination.

(iii) How are the students evaluated? With what criteria or indicators?

The evaluation is based on 3 criteria:

1. Use of colors
2. Use of drawing tools
3. Use of geometric figures

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

Drawing with computer in Comenius Logo is "learning by exploring". A new type of relationship is established. The teacher is in role of consultant.

(v) Student activities: assignments, communications, group work vs individual work

The basic activities that children exercise during computer painting are: coloring, constructing, free hand drawing, combination and processing predefined images

(vi) What technology is used? Is there available technical support?

Comenius Logo Environment in Bulgarian. There is supporting web site:
www.virtech-bg.com/comlogo/

(vii) What are the instructional materials and resources used and how do the students access them?

Available resources:

- On-line help system in Bulgarian language.
- Handbook "Graphics" (series "The computers in primary school").

(viii) Are there other learner services available through ICT?

Web site: <http://edusoft.fmi.uni-sofia.bg/PrimaryICT/>

(ix) Are there known pedagogical results with this practice?

Developing ideas and making things happen.

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

UNESCO "informatics for primary school – Recommendations"(2000), part "Successful stories".

The number of participating schools increases from 4 in 1998 to 50 schools in 2002.

(xi) Has this "good practice" been officially recognized, "labelled", presented in conferences? If so, when and by whom?

The results are presented in the National workshops (<http://edusoft.fmi.uni-sofia.bg/primaryICT>) and papers:

- "Informatics and Information Tehnologies in Primary School based Logo environment" (Ilieva, V., Ivanov, I.) Eurologo'99: Extending Educational Horizons in the Spirit of Logo: a 20th Century Epilog, Sofia, Bulgaria
- "Exploring with Logo: Use of Colours, Drawing Tools and Predefined Figures by Children" (Ivanov, I., Stanchev, P.) Eurologo'99: Extending Educational Horizons in the Spirit of Logo: a 20th Century Epilog, Sofia, Bulgaria
- "Informatics and Information Technologies in Primary Schools in Bulgaria" (Ilieva, V., Ivanov, I.) Seventh IFIP World Conference on Computers in Education, 2001, Copenhagen, Denmark

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

Yes, it correspond to a general or specific European interest for educational actors.

(xiii) Could a peer review¹ visit be organised? Can you suggest possible dates?

Yes, in April or May.

(xiv) Contact reference for the initiative

Ivailo Ivanov, iivanov@fmi.uni-sofia.bg, +359 88 237688
Sofia University,
Private School "St. st. Cyril and Methodius" - Sofia

¹ See previous page.

DENMARK

Meeting preparation: Finding examples of good policies and good practices in integrating ICT in education and initial vocational education

Identifying "good policies and good practices"

Following our last meeting, the exchange of experiences of 'good policy practices' and of 'good pedagogical practices' integrating ICT appears as the next phase of our work. As we need to prepare and exchange under **comparable headings** information concerning different levels and different contexts, the following grid is proposed for the presentation of the information. This will facilitate the selection of comparable practices and experiences and the analysis of the different contributions.

How we will use your contribution?

When we receive your examples (1 to 4) of good policy practice and of good pedagogical practices we will use them in order to select thematic clusters and areas for further work at our next meeting.

What are "good practices"

In this report, « good practices » must be approached as « good examples » of educational policies in the field of ICT in education. The involved experts considered that practices are not good, per se. Their value relate to their contribution to what is defined in each context as « quality education » and as « effective systems ».

Each example should then be chosen in relation to that are considered - in given contexts - as contributing to a quality education and to effectiveness of systems. The chosen practices may highlight different options for answering the same issues, or they may highlight different fields of pedagogical or organisational practices such as:

- Quality environments, including proper hardware and software in schools; interactive learning on-line materials and educational software, as well as new services ; approaches based on new games and new learning environments.
- Practices in the classroom/the school, especially with a view of integrating ICTs in various subjects, or for pluridisciplinary approaches; a particular emphasis could be given to the pedagogical training of teachers, observation of learning processes/results, the new roles of teachers/trainers and pupils, the way pupils communicate, and the opening up of the school with a view to lifelong learning.
- Use of ICTs in non-formal education, museums, resource centres, social places, for areas such as environmental education ; health education ; art and science education ; media literacy.

Identifying examples of "good practices" in education and initial vocational education:

two types of good practices are concerned:

- Good policy practices integrating ICT
- Good pedagogical practices integrating ICT

In part 1), you can present examples of policies which have been/are being adopted at national/regional government level and have been/are being successfully implemented in the field of education, initial vocational education or non-formal education.

In part 2) you can present examples of ongoing experiences that have been identified as good pedagogical practices by school teachers or by an academic or government authority.

While we are only able to provide the questions in English, you may provide your answers in **English, French**. Answers need not exceed **15 lines in each block**.

A. Examples of good policy practice in integrating ICT in education and initial vocational education

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus, or other? By whom?

a) The development of the pedagogical driver's license, School-IT. Decided upon by the Ministry of Education in a dialogue with representatives from various interest groups and the developers.

b) In June 2000 a majority of the Danish parliament agreed to spend 340 m DKR (equivalent to 45 m EUROS) for IT and media in the Danish *Folkeskole*.
The purpose of the project is to further the pedagogical use of IT and other media in primary and lower secondary education and to facilitate the dialogue between the parties of the *Folkeskolen*.
The political agreement outlines four main focus areas: 1) "Educational Opportunities", 2) "Teachers' Qualifications", 3) "Purchasing of television programmes as learning materials", and 4) "Connection of schools to the Sektornet".
There is a strong emphasis on "networking". Thus only schools in network and municipalities on behalf of a network of schools can apply for project funding – in collaboration with researchers, publishers, IT specialists, and other partners.
Furthermore, there is a strong emphasis on "dissemination of project results and good practices" coming out of the projects. In addition to the funding given to each project, a sum of money is reserved for every project for participation dissemination activities, planned and organised by the project secretariat.
Finally, an evaluation activity is being carried out across focus areas 1) – 3). The evaluation has three overall objectives, i.e. supplying the projects with different types of project management and evaluation tools facilitating the individual projects in the course of their lifetime. Secondly, to document and disseminate project experiences and good practice achieved through the projects and focusing on the enablers to a changed practice using IT and media and not on the barriers to change. Thirdly, it will be evaluated if the initiative IT and media in the Danish *Folkeskole* has met its overall aims and objectives.

(ii) Description of the policy: target groups, duration, outcomes

a) Target group: In-service training of teachers. Duration: 6-12 months Outcomes: Teachers become well acquainted with the pedagogical possibilities and limitations of the use of ICT in education, generally as well as closely connected with the subject matters they teach.

b) Target group: Schools and municipalities are encouraged to establish networks and to co-operate with researchers, publishers, IT and media specialists and other partners with the aim to develop educational content and learning materials. Duration: 4 years from 2000 till the end of 2003. Outcomes: 100+ development projects have been initiated, receiving financial support covering between 50-100% of the project expenses. Experiences are continually gathered, forming the basis for different types of dissemination activities aimed at different target groups and seen from different point of views.

(iii) Known opinions, reactions, appreciation of those concerned by the policy: teachers, students, administration, parents, other.

a) A survey on the effect of School-IT has been carried out by PLS Ramböll Management. (Please refer to the report for more information – an English resume can be found on www.school-ict.org).

b) Among the municipalities and schools exists a broad positive opinion concerning the IT and media in the Danish *Folkeskole* initiative. The funding offered through the initiative provides the schools with the possibility to initiate and participate in IT and media development projects which otherwise had not become a reality at this point in time.

(iv) What are the criteria for qualifying this practice as "good": who qualifies it and why?

a) UNI-C is the qualifying organisation together with the steering committee for the initiative.

b) No criteria have been set up yet, but the issue is being discussed presently.

(v) Are there any known pedagogical results obtained with this policy?

a) A survey on the effect of School-IT has been carried out by PLS Ramböll Management. (Please refer to the report for more information – an English resume can be found on www.school-ict.org).

b) No pedagogical results are yet documented centrally.

(vi) Is there a European dimension to this policy? If any, could you describe it?

a) The concept has been sold to Norway.

b) The initiative in itself has no European dimension, but the core aims and objects as well as the organisation of the initiative can - with minor modifications - be adopted by other European countries who want to increase the use of IT and media in education.

(vii) Could a peer review² visit be organised? Can you suggest possible dates?

(viii) Contact reference for the initiative

UNI-C

B. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

The schools' database service SkoDa is a basic collection of databases accessible for teachers and students in the Danish schools. Each school must subscribe to the service in order for the teachers and students to access the SkoDa databases.

The SkoDa databases contain a huge amount of information available for teaching and learning purposes.

From the huge number of examples of good practices using ICT and the access to the SkoDa databases one project has been identified, which will be described here.

The project was carried out in a class in 9. grade (secondary school). The project ran over a 2 weeks period with 3 days assigned entirely to the project. The content of the project was "journalism" / "writing for a newspaper".

(ii) What are the main intentions in integrating IT in this course or experience?

The students should learn how to use news databases and search engines for research.

(iii) How are the students evaluated? With what criteria or indicators?

² A peer review is one of the methods indicated as a way of sharing good practice within the context of the Open Method of Coordination. It will involve a visit by a number of expert colleagues (peers) to document and study the example of good policy practice. It could include meetings with policy makers, meetings with those responsible for the delivery of the policy, and its implementation on the ground, and an opportunity to exchange views with colleagues throughout the visit in order to determine what may be of interest for individual participants. Normally a visit would include 2/3 members of the expert group, an academic expert, and a Commission official.

The students are evaluated by their teacher, as part of the on-going evaluation of their effort and skills.

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

The teacher's role was primarily that of an initiator, mediator and consultant. He planned the project, produced the assignments, instructed the students, introduced them to the databases available for them, etc.

The students took on the role of journalists and editors at a newspaper.

(v) Student activities: assignments, communications, group work vs individual work

The students are presented with a set of assignments, each of them to be carried out within a limited period of time.

The students work in smaller or larger groups, but not on an individual basis.

The communication between teacher and students is oral.

(vi) What technology is used? Is there available technical support?

The students work with computers and cameras.

(vii) What are the instructional materials and resources used and how do the students access them?

Instructions are given by the teacher.

References to different types of instructional materials, such as guidelines for writing articles and different types of texts within the genre 'journalism', etc. are given by the teacher, who also introduces the students to the on-line databases and how to use them.

The SkoDa on-line databases and search engines are accessed via the school's Internet access provided by the Sektornet.

(viii) Are there other learner services available through ICT?

(ix) Are there known pedagogical results with this practice?

The students learn how to use search engines and on-line databases more effectively. They learn how to navigate in news databases and to exploit the huge amount of information available there.

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

A group of editors comprising teachers, learning material developers and other experts have valued this teaching/learning example as an example of good practice to be included in an anthology. (This anthology is only available in Danish)

(xi) Has this "good practice" been officially recognized, "labelled", presented in conferences? If so, when and by whom?

This example is published in an anthology together with a number of other examples of good practices integrating ICT in education. (This anthology is only available in Danish)

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

It corresponds with other European initiatives developing students' writing skills through the use of journalism as a genre together with the exploitation of the possibilities that ICT offers in the research process as well as in the writing process.

(xiii) Could a peer review³ visit be organised? Can you suggest possible dates?

(xiv) Contact reference for the initiative

UNI-C

a) In relation to School-IT: As part of the School-IT course the participants prepare a number of different examples of pedagogical practice integrating ICT in shorter or longer modules within their subject matters. There are hundreds of such examples, but they are presently not available to others. ...

b) In relation to the initiative IT and media in the Danish Folkeskole: Two-thirds of the projects funded by this initiative focus on educational opportunities using ICT and media, and many examples of good pedagogical practice in integrating not only ICT but also media in education are being developed and tried out in or out of classrooms with pupils of different ages and for different pedagogical purposes. However, it is yet too soon to point out selected detailed examples. In a short while the first examples of good practices integrating ICT and media will be presented on the homepage of IT and media in the Danish Folkeskole (www.itmf.dk), and new examples will be presented on a more regular basis.

³ See previous page.

ESTONIA

A. Examples of good policy practice in integrating ICT in education and initial vocational education in Estonia

A1. A national Tiger Leap Foundation

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus, or other? By whom?

The decision has been made on the highest political level: Estonian Government initiated the Tiger Leap Foundation in 1997; the President of Estonia announced it.

(ii) Description of the policy: target groups, duration, outcomes.

Tiger Leap is a national target program with the overall objective to promote the educational system in Estonia with introduction of modern information and communication technology. The Foundation covers, for example: 1) 50% of the costs for continuing education courses for teachers and school principals that are devoted to implementation of ICT tools in schools. Duration is not limited and reaches from short courses (6 contact hours) to a, for example, two-year master course called "Multimedia and Learning Systems"; 2) 100% of the costs for development and 50% of costs in purchase of educational software; 3) 50% of costs for hardware bought by schools.

(iii) Known opinions, reactions, appreciation of those concerned by the policy: teachers, students, administration, parents, other.

In general, the program has been widely approved in Estonia. For different activities of the Tiger Leap Foundation, the opinions of those involved are collected and analysed differently. For example, there are feedback questionnaires for teachers who take part on the courses. Although no formal research has been done this feedback has been used and will be used in deciding which institutions and which lecturers will qualify as providers of the courses.

(iv) What are the criteria for qualifying this practice as "good": who qualifies it and why?

The situation about the usage of ICT tools in Estonian schools in the year 2000 is described in "Tiger under Magnifying Glass" study
http://www.tiigrihype.ee/eng/publikatsioonid/tiigerluup_eng/tiigerluup_eng.html
Currently there is going on a follow-up study after which it will be possible to measure the impact.

(v) Are there any known pedagogical results obtained with this policy?

The learning materials prepared for the courses supported by the Tiger Leap Foundation are publicly available. In addition, the best learning materials developed by the learners during the courses are made publicly available in Teacher's Portal *Koolielu* (www.koolielu.ee, subsection *Õppematerjalid*). Each item can be assessed by users; if assessed, the average note (called *keskmine hinne* in Estonian, 5 point scale) is indicated.

(vi) Is there a European dimension to this policy? If any, could you describe it?

Although it is a national program the Foundation always invited eminent foreign guests to the big events. For example, there were a number of guests from Great Britain taking part on the Annual Conference 2002.

(vii) Could a peer review visit be organised? Can you suggest possible dates?

A peer review visit is possible, the details should be discussed by Mrs. Enel Mägi, the General Manager of the Foundation (enel@tiigrihype.ee).

(viii) Contact reference for the initiative

<http://www.tiigrihype.ee/eng/index.php>

B. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

B1. A “Multimedia and Learning Systems” master course

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

A master course “*Multimedia and Learning Systems*” at Tallinn Pedagogical University (TPU). The duration of the course is two years: three semesters (4,5 months each) for the studies and one semester for compilation of a thesis. The study is cyclic: two days (every second weekend, on Saturday and Sunday) face-to-face studies and remaining 12 days independent studies.

(ii) What are the main intentions in integrating IT in this course or experience?

The main target group of the course are in-service teachers (in whatever specialty). The graduates should have knowledge and skills necessary for development hypermedia based educational software in their subject areas and for implementing it in different environments (CD, Internet); the graduate should also have knowledge and skills for effective usage of learning management systems (LMS) in learning and teaching context.

The need in such a course is based on the fact that in a small country like Estonia the production of educational software (*incl.* electronic learning materials) is not profitable and therefore ICT companies are not interested in it; therefore, experienced teachers will be the main contributors. As we can see from *The Teacher’s Portal* the quality of such materials is very often very low; this means that there is a huge lack of teachers who are able to produce quality materials and as well, are able to use already existing materials/software.

(iii) How are the students evaluated? With what criteria or indicators?

As this is a regular university course the students are in different subjects evaluated according to the common evaluation system in Estonia: 0 – not passed (up to 50% of necessary knowledge and skills acquired), 1 – 50...60%, 2 – 60...70%, 3 – 70...80%, 4 – 80...90%, 5 – 90...100%.

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

The basic methods are discussions and practical work in computer laboratories. As the main part of the students are in fact in-service teachers and therefore already have certain professional experience most of the face-to-face teaching/learning is accompanied by lively discussions.

(v) Student activities: assignments, communications, group work vs individual work

At the End of every topic, the students should make a practical work. In some cases this work will be made by a group of students. However, this causes sometimes difficulties as the students are living in different locations in all over Estonia.

(vi) What technology is used? Is there available technical support?

Face to face studies are taking place in computer lab (even lectures), so the students are able to follow the learning materials on the screen (and update, add comments etc).

(vii) What are the instructional materials and resources used and how do the students access them?

The learning materials should be freely available to the students at least two days before the lecture or seminar. There are two main possibilities (depends on the university teacher which

option to use): 1) to use an *LMS* (see answer to the next question); 2) to use web pages which are developed separately for every study group.

(viii) Are there other learner services available through ICT?

Previously, mainly *WebCT* and *Learnloop* has been used as an electronic learning environment. Starting this year, an original (i.e. developed at *TPU*) *LMS* called *IVA (Innovative Virtual Academy)* will be used.

(ix) Are there known pedagogical results with this practice?

The pedagogical results will be evident in a long term, as it is relatively difficult to measure the impact of the course.

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

In the quality assurance system of *TPU*, there is elaborated a system measuring the quality of courses by different indicators. The average note of the "Multimedia and Learning Systems" master course is 4,3 (on the 5 point scale) while the average note for all courses at the university is 3,7. Although the target group of the course is in-service secondary school teachers, this course is popular among "fresh" university graduates and teachers of higher educational institutions as well. As an indicator we may take the fact that almost half of the students are paying themselves for the studies.

(xi) Has this "good practice" been officially recognized, "labelled", presented in conferences? If so, when and by whom?

There is a so-called *State Order* to prepare specialists by this master program (this means that Estonian Ministry of Education presents an order to the university to prepare every year a certain number of graduates). The master program has been presented in conferences both in Estonia and abroad (for example, the presentation "Training teachers to become educational software developers" on the ICTE 2002 conference "Information Society and Education: Monitoring a Revolution", 20-23.nov 2002 in Badajoz, Spain (www.formatex.org/ProgramaOrales.htm)).

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

The master course was developed in the framework of the TEMPUS Joint European Program Nr 12418, in co-operation with Tampere University of Technology (Finland), Twente University (the Nederland) and the Institute of Technology Tallaght (Dublin, Ireland).

(xiii) Could a peer review⁴ visit be organised? Can you suggest possible dates?

A peer review visit is possible, the details should be discussed by Mrs. Katrin Niglas, the head of the Department of Informatics at TPU (katrin@tpu.ee).

(xiv) Contact reference for the initiative

[http:// www.cs.tpu.ee/magister/kavad/informatics_english.html](http://www.cs.tpu.ee/magister/kavad/informatics_english.html)

⁴ See previous page.

B2. In-service teacher training based on Intel's Teach to the Future

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

This is a 40-hours course for teachers of all subjects and school levels from kindergarten to upper secondary. It is carried out by a network of 50 trainers in different locations (mostly in schools, at least two in every county). The course content is adapted from Intel's course *Teach to the Future*. Focus is not on tools, but the methods of using ICT in teaching and learning. This is an intermediate-level course for teachers who already have basic ICT skills.

(ii) What are the main intentions in integrating IT in this course or experience?

The main goal is to help the teachers to recognize and master different ways of using ICT in their job.

(iii) How are the students evaluated? With what criteria or indicators?

Every participant has to complete number of assignments and in the end of course to present a self-made electronic learning resource (lesson plans, e-worksheets, web site, multimedia presentation).

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

40 hours face-to-face instructor-lead study in computer lab, including group discussions.

(v) Student activities: assignments, communications, group work vs individual work

Individual assignments: lesson plans with accompanying e-worksheets and self-designed web page. Communication between face-to-face sessions by e-mail.

(vi) What technology is used? Is there available technical support?

Internet-connected computers, MS Office software (Word, Excel, PowerPoint, Publisher),

(vii) What are the instructional materials and resources used and how do the students access them?

200-page folder with printed learning materials is handed to each trainee in the beginning of the course

(viii) Are there other learner services available through ICT?

No, only in the end of course the online feedback questionnaire is filled by each trainee and the best courseworks will be uploaded to educational portal <http://www.koolielu.ee>.

(ix) Are there known pedagogical results with this practice?

There are reports from number of schools where use of ICT by teachers has been significantly increased after passing this course.

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

(xi) Has this "good practice" been officially recognized, "labelled", presented in conferences? If so, when and by whom?

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

This is a world-wide initiative which was relatively successive in Estonia.

(xiii) Could a peer review⁵ visit be organised? Can you suggest possible dates?

A peer review visit is possible, the details should be discussed by Mrs. Enel Mägi, the General Manager of the Foundation (enel@tiigrihype.ee).

(xiv) Contact reference for the initiative

www.tiigrihype.ee

Prepared by: Peeter Normak (pnormak@tpu.ee)

⁵ See previous page.

GERMANY (Federal level)

A) Examples of good policy practice in integrating ICT in education and initial vocational education

Lehrer-Online

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus or other? By whom?

Practitioners in schools developed the idea for the service, the Federal Government decided to fund it, a recommendation for use resulted from a dialogue with Länder governments.

(ii) Description of the policy: target groups, duration, outcomes

Lehrer-Online (teachers online) is a portal for educational content by teachers for teachers. It offers digital content for nearly all subjects in all school types and levels. The content relates to a curriculum, is evaluated in a classroom setting and free for schools. Lehrer-Online also offers a structured working space for virtual collaboration between teachers, teachers and pupils in virtual classrooms and between teachers, pupils and parents. The service is used countrywide and is explicitly recommended for teacher use by the state government of Northrhine-Westphalia.

(iii) Known opinions, reactions, appreciation of those concerned by the policy: teachers, students administration, parents, other.

The use of the service has multiplied in the last years to about 300.000 sessions per month (at 600.000 teachers in Germany). Due to teacher demands, further developments for primary schools and vocational training were made. Following the use by the schools, the Länder governments are starting to adapt Lehrer-Online services into their work.

(iv) What are the criteria for qualifying this practice as “good”: who qualifies it and why?

Teacher’s recommendations and comments from work with the systems and its content in schools.

(v) Are there any known pedagogical results obtained with this policy?

For content use: there is no independent study available.

For virtual collaboration: there has been no virtual classroom platform before suiting school’s needs. Lehrer-Online thus allowed manifold experiments with this new form of learning.

(vi) is there a European dimension to this policy? if any, could you describe it?

Part of Lehrer-Online is “Exile Club”, a project on exile and expulsion in the 20th century, dealing with German history as well as exiles from other countries in the present. Since questions regarding elementary rights and the support for exiles in different countries are at the core of the project, a European dimension is of course given.

(vii) Could a peer review visit be organised? Can you suggest possible dates?

vii a) yes

vii b) no

(viii) Contact reference for the Initiative

Schulen ans Netz e.V.,

Max Habermann Str. 3

53123 Bonn, Germany

A) Examples of good policy practice in integrating ICT in education and initial vocational education

LizzyNet

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus or other? By whom?

The discrepancies in ICT use by girls and boys brought the Federal Government to fund a site devoted to female pupils needs complete with pedagogic counselling and advice.

(ii) Description of the policy: target groups, duration, outcomes

LizzyNet is a portal for girls in their teens, but reaching from pre-teen age until university attendants.

(iii) Known opinions, reactions , appreciation of those concerned by the policy: teachers, students administration, parents, other.

LizzyNet is appreciated by the target group because of the topics addressed, the freedom of intrusion by male participants and commercial third parties. School-related topics are worked out, the portal is also used for teen-related themes.

(iv) What are the criteria for qualifying this practice as “good”: who qualifies it and why?

Teachers and parents appreciate a safe environment for girls devoted to learning and school topics. The target group identifies themes and topics for further development.

(v) Are there any known pedagogical results obtained with this policy?

The use of computers and the internet has risen amongst girls of the target age group, the self-esteem concerning ICT amongst girls using the portal was reported by teachers to improve. Further evaluation is projected.

(vi) is there a European dimension to this policy? if any, could you describe it?

n.a.

(vii) Could a peer review visit be organised? Can you suggest possible dates?

vii a) yes

vii b) no

(viii) Contact reference for the Initiative

Schulen ans Netz e.V.,

Max Habermann Str. 3

53123 Bonn, Germany

B Examples of good pedagogical practice in integrating ICT in education and initial vocational education.

Project LeMO

(I) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

LeMO is an Internet-based multimedia information system on the German history of the 20th century. LeMO is based on a virtual museum on the same topic. Through a modular design LeMO offers course material for different school types and ages according to the curricula.

(ii) What are the main intentions in integrating IT in this course or experience?

The goal is to motivate pupils for an analytical and productive use of history materials in a constructivist sense.

(III) How are the students evaluated? With what criteria or indicators?

n.a.

(IV) What is the basic pedagogical method: types of teacher-student interaction, duration, role of teacher and role of Student

Group and project work by students, student constructing and structuring their knowledge.

(v) Student activities: assignments, communications, group work vs individual work

Group and individual work

(vi) What technology is used? Is there available technical support?

Internet-based multimedia data base with structuring mechanisms.

(vii) What are the instructional materials and resources used and how do the students access them?

The German Historical Museum cooperates in the project and supplies material.

(viii) Are other learner services available through ICT?

n.a.

(ix) Are there known pedagogical results with this practice?

the project is still in evaluation

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

The Museum's material was strongly appreciated by schools. The content is now developed further and suited to curricular needs.

(xi) Has this "good practice" been official recognized, "labelled", presented in conferences? If so, when and by whom?

n.a.

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

n.a.

(xiii) Could a peer review visit be organised? Can you suggest possible dates?

xiii a) yes

xiii b) no

(xiv) Contact reference for the initiative

www.dhm.de/lemo/

[Dr. Jürgen A. Schmidt](#)

ITALY

Meeting preparation: Finding examples of good policies and good practices in integrating ICT in education and initial vocational education

Identifying "good policies and good practices"

Following our last meeting, the exchange of experiences of 'good policy practices' and of 'good pedagogical practices' integrating ICT appears as the next phase of our work. As we need to prepare and exchange under **comparable headings** information concerning different levels and different contexts, the following grid is proposed for the presentation of the information. This will facilitate the selection of comparable practices and experiences and the analysis of the different contributions.

How we will use your contribution?

When we receive your examples (1 to 4) of good policy practice and of good pedagogical practices we will use them in order to select thematic clusters and areas for further work at our next meeting.

What are "good practices"

In this report, « good practices » must be approached as « good examples » of educational policies in the field of ICT in education. The involved experts considered that practices are not good, per se. Their value relate to their contribution to what is defined in each context as « quality education » and as « effective systems ».

Each example should then be chosen in relation to that are considered - in given contexts - as contributing to a quality education and to effectiveness of systems. The chosen practices may highlight different options for answering the same issues, or they may highlight different fields of pedagogical or organisational practices such as:

- Quality environments, including proper hardware and software in schools; interactive *learning on-line* materials and educational software, as well as new services ; approaches based on new games and new learning environments.
- Practices in the classroom/the school, especially with a view of integrating ICTs in various subjects, or for pluridisciplinary approaches; a particular emphasis could be given to the pedagogical training of teachers, observation of learning processes/results, the new roles of teachers/trainers and pupils, the way pupils communicate, and the opening up of the school with a view to lifelong learning.
- Use of ICTs in non-formal education, museums, resource centres, social places, for areas such as environmental education ; health education ; art and science education ; media literacy.

Identifying examples of "good practices" in education and initial vocational education: two types of good practices are concerned:

- Good policy practices integrating ICT
- Good pedagogical practices integrating ICT

In part 1), you can present examples of policies which have been/are being adopted at national/regional government level and have been/are being successfully implemented in the field of education, initial vocational education or non-formal education.

In part 2) you can present examples of ongoing experiences that have been identified as good pedagogical practices by school teachers or by an academic or government authority.

While we are only able to provide the questions in English, you may provide your answers in **English, French**. Answers need not exceed **15 lines in each block**.

ITALY

A. Examples of good policy practice in integrating ICT in education and initial vocational education

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus, or other? By whom?

The Italian Ministry of Education (MIUR), from “e-europe” and “e.government” indications to complete, strength and orienting the educational ICT national programme, have launched FORTIC (Formazione sulle Tecnologie dell’Informazione e della Comunicazione) in 2002, 21 May.

<http://puntoeduft.indire.it/>

www.istruzione.it (Innovazione tecnologica- Progetti)

(ii) Description of the policy: target groups, duration, outcomes

The national training plan within the e-learning initiative, FORTIC, is referred to all level school teachers.

Teachers have been grouped according to ICT skills (4 possible levels) and school’s role: A) average teachers, as ICT users; B) coordinators for didactical use of ICT in schools; C1) teachers in charge of ICT infrastructure at school, basic level; C2) teachers in charge of ICT infrastructure at school, high level.

Participants: 160.000 level A; 13.500 level B; 4.500 level C1+C2----Duration of the training: about 1 year

(iii) Known opinions, reactions, appreciation of those concerned by the policy: teachers, students, administration, parents, other.

This action is starting up in February 2003 and the end is estimated in December 2003. It has been planned a Monitoring project conducted by the INVALSI (Italian National Institute of Education System Evaluation).

We have been 100% adhesion to level A) and B) and 180 % requests for level C)

(iv) What are the criteria for qualifying this practice as “good”: who qualifies it and why?

The training model including technical and pedagogical use of ICT, in presence (50 %) and e-learning (50 %) modalities: e-learning blended model (e-learning integrato).

The e-learning platform usable from 180.000 teachers, with course materials developed by different Universities and downloadables from platform. There are too Area Laboratories-experiences from schools and study cases.

There is also possibility of on-line collaboration (virtual classes)

(v) Are there any known pedagogical results obtained with this policy?

In similar other actions conducted in the last years we have had a large distribution of ICT use in the different disciplinary areas (in non-specialists curricula) as: Human 28 %, Languages 11,6 %, Mathematics 17 %, Natural Sciences 7,2 %, Artistics 5,7 %, Technologies 7 %, others 23 %

(vi) Is there a European dimension to this policy? If any, could you describe it?

The European dimension is the e-learning EU policy and e-europe plan

- (vii) Could a peer review⁶ visit be organised? Can you suggest possible dates?
(viii) Contact reference for the initiative

Ministero dell'Istruzione, Viale Trastevere 76- 00153 Rome
Servizio per l'Automazione Informatica e l'Innovazione Tecnologica
Mr. Alessandro Musumeci, General Director
alessandro.musumeci@istruzione.it

I think is interesting a peer review visit in September 2003

B. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

- (i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

Special Project SeT is foster the development of scientific and thecnological studies in school by improving the quality of teaching. Schools which take part in the project receive resourses.

Within SeT project there are some Pilot Project launched at national level, to involve school networks.

A good example is represented by LABTEC: scientific laboratory activities integrated with ICT, in high schools

www.indire.it/set (progetti pilota)

www.progettolabtec.net

- (ii) What are the main intentions in integrating IT in this course or experience?

LABTEC is aimed at enhancing experimental methodologies and pratical activities through the use of new technologies.

This project, particularly, places great importance on integrating different types of laboratory activities, based on technologically- advanced, portable or cheaply- available equipment

- (iii) How are the students evaluated? With what criteria or indicators?

⁶ A peer review is one of the methods indicated as a way of sharing good practice within the context of the Open Method of Coordination. It will involve a visit by a number of expert colleagues (peers) to document and study the example of good policy practice. It could include meetings with policy makers, meetings with those responsible for the delivery of the policy, and its implementation on the ground, and an opportunity to exchange views with colleagues throughout the visit in order to determine what may be of interest for individual participants. Normally a visit would include 2/3 members of the expert group, an academic expert, and a Commission official.

Particular attention will be given to assessing, in term of teaching/ learning, the added benefit of using computers, calculators and sensors connected to a processor for recording and analysing data in scientific-technological field;
The use of the evaluation sheets before, while and after experimental students activities give indication about criteria above defined.

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

The teachers propose practical experiences on different scientific area (4 or 5 in Labtec), supported by Worksheet. The autonomous student work and discussion with teachers are the base for future report of experiences, with a critical comment by teachers.

Two CD-Rom and a book are available. A CD Rom containing a full range of materials of use has been published too. Web pages with documentary and training informations.

(v) Student activities: assignments, communications, group work vs individual work

There is possible work group and individual work at home too, with particular portable equipments.

There is a community Labtec in website: www.labtec.net.

(vi) What technology is used? Is there available technical support?

Laboratory equipments integrated with ICT for each group of students (about 3-6 students)

There is the technical support by teachers.

(vii) What are the instructional materials and resources used and how do the students access them?

Labtec materials such as pupil worksheets, didactic "micropathways", guidelines, teachers worksheet and classroom reports constitute a top-quality source of reference.

The materials are given by teachers and the equipments are in the school laboratories.

(viii) Are there other learner services available through ICT?

Are available examples of activities in website Labtec

(ix) Are there known pedagogical results with this practice?

The pedagogical results are:- good examples of experimental activities on Physics, Biology, Natural sciences integrated with ICT, referred to school concrete situations, that produced increase of motivation in pupils and a view of useful applications of ICT in disciplinary contexts.

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

The connection between ICT and disciplinary teaching, in a way of integration of media and apparatus and not exclusive or absolute use.

The main criteria or indicators are: increase the experimental activities in scientific education area; scientific teachers adhesion to pedagogical utilisation of ICT ; production of original method and procedure related to traditional experiences

(xi) Has this “good practice” been officially recognized, “labelled”, presented in conferences? If so, when and by whom?

It has presented in different contest: national (Physics national congress 2000; ADT association congress 2001) and international (GIREP 2000) scientific congress. National meeting on ICT in education as TED (Genova 2000 and 2001)

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

Corrisponde to general and specific European interest for education actors (teachers, pupils, policy makers) in the Scientific and Technical area connected with school networks

(xiii) Could a peer review⁷ visit be organised? Can you suggest possible dates?

May- June 2003

(xiv) Contact reference for the initiative

Giuseppe Marucci
Technical Inspector
Ministry of Education, Viale Trastevere 76- 00153 Rome
giuseppe.marucci@istruzione.it

⁷ See previous page.

Greece

GREECE

A. Examples of good policy practice in integrating ICT in education and initial vocational education

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus, or other? By whom?

The Ministry of National Education and Religious Affairs (MNER) has emphasised the importance of the use of New Information Communication Technologies (ICT) in education. On early eighties Information Technology subject was introduced into secondary education as a separate curriculum subject aiming to familiarise students with the use of basic ICT tools. On mid-nineties the focus shifted on the integration of the use of ICT into everyday teaching practice. A pilot programme "Odysseia" was launched aiming to develop a critical mass (technical and human) within the secondary education to exploit ICT in the everyday school life. The programme involved the 10% of secondary schools and run from 1996 up till now. Within the framework of this program technical infrastructure was developed in schools; existing high-quality educational software was translated in Greek language and new was developed, and 100 teachers were trained in a long term training course to function as trainers of teachers. Experience gained from Odysseia helped further developments for the integration of ICT into educational practice at a large scale, providing technical infrastructure, educational software and the first teacher trainers, but also guidelines for technical specifications for hardware and methodology for teacher's training. Current policies that encourage further the integration of ICT in education focus at a large scale and can be presented under three main headings: Large scale teachers' training; Educational Portal; Pan-hellenic school network.

(ii) Description of the policy: target groups, duration, outcomes

Large scale teachers' training

The program targets to familiarise all in-service teachers in all levels of education (total 150.000) with the use of basic ICT tools. The program respects teachers' personal life giving them many options for choosing different courses. It follows a decentralised management approach creating peripheral structure and infrastructure of realisation and monitoring. It also attempts to involve as many Institutions and agencies with experience to ICT.

In parallel with the basic skills training, the one hundred trainers came from the Odysseia project perform in-school training for working teachers aiming to support them exploit the use of ICT in their everyday teaching.

Educational Portal

The educational site developed by the Ministry of National Education and Religious Affairs aims to present a virtual meeting space and support agency for all educational community. In this site, teaching practices, articles, discussion papers are submitted for educational exploitation. The portal was designed from the teachers' trainers connecting their experience with in-service teachers' interests. It is expected that teachers will exploit submitted teaching scenarios, and resources on the site.

Pan-hellenic school network

The Ministry of Education developed a Pan-hellenic school network aiming to encourage collaboration and communication among the educational community: schools, administration units, teachers, students and administrators. Among other facilities, the network provides connectivity between educational units, email, web-based calendar and address book, directory service, web page development, educational site which comprises statistics, news and forums.

(iii) Known opinions, reactions, appreciation of those concerned by the policy: teachers, students, administration, parents, other.

Large scale teachers' training

The program gained great appreciation on behalf of the teachers. Applicants (40.000) are currently more than the available positions for training (16.000).

As for in-school training, research has shown that teachers express positive views for the in-school training. They feel that additionally to the training, they support them in their school to integrate ICT in their everyday teaching.

Educational Portal

The educational portal, although still under modifications and improvements, has started to become known to the educational community and used. The portal measures already 40.000 entries. There is not though any information on the ways teachers use the resources submitted on the site.

Pan-hellenic school network

The school network gained the approval of the educational community, since its use presents rapid development.

(iv) What are the criteria for qualifying this practice as "good": who qualifies it and why?

Large scale teachers' training

The program can be considered effective in the sense that its initial aim to provide large scale training to teachers on basic IT skills is being obtained. A total of 51.000 teachers from all school levels have already been trained on the use of basic ICT tools and are considered qualified to participate in the next training course on the use of ICT in their educational practice.

As for the in-service training, it can be considered effective, since research have shown that in cases teacher trainers visited the schools teachers managed not only to use ICT in their teaching but some of them use them as mediums to encourage innovative practice.

Educational Portal

The educational portal can be considered effective, since it provides a link among Ministry of Education, Pedagogical Institutions, teacher trainers and in-service teachers. Developed from the teachers' trainers, it is expected to address real needs and questions. Teaching scenarios that have been developed from teacher trainers and the first teachers who are trained through in-school training were submitted into the portal.

Pan-hellenic school network

The school network can be considered effective since up until now all secondary and Initial Vocational training units, half of primary education units and a small percentage of kindergardens are connected to the network.

(v) Are there any known pedagogical results obtained with this policy?

Large scale teachers' training

A total of 51.000 teachers are confident to use basic ICT tools and are ready to participate in the next phase teacher training related to the exploitation of ICT in teaching. A number of 3000 teachers have already received in-school support. Teachers who have received in-school training have started to use ICT in their everyday practice and additionally, to use it as a medium to encourage innovative practice

Educational Portal

There is not yet evidence on the pedagogical impacts of the educational portal, reference to the kind of use the educational community makes of the portal, or to the actual use of resources in real settings.

Pan-hellenic school network

The use of school network shows rapid development. While on 1999 only 2047 entries had been recorded, 19.436.980 were recorded on 2002. Additionally, large numbers of dialup access have been recorded, 13.789 active email accounts function, while new subjects and registrations are continually operate in the forum.

(vi) Is there a European dimension to this policy? If any, could you describe it?

-
- (vii) Could a peer review⁸ visit be organised? Can you suggest possible dates?**
(viii) Contact reference for the initiative

⁸ A peer review is one of the methods indicated as a way of sharing good practice within the context of the Open Method of Coordination. It will involve a visit by a number of expert colleagues (peers) to document and study the example of good policy practice. It could include meetings with policy makers, meetings with those responsible for the delivery of the policy, and its implementation on the ground, and an opportunity to exchange views with colleagues throughout the visit in order to determine what may be of interest for individual participants. Normally a visit would include 2/3 members of the expert group, an academic expert, and a Commission official.

B. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

Within the framework of Odysseia the first use of ICT into everyday teaching was reported. Many teaching scenarios were developed through the training of teachers' trainers and from teachers in participating schools. The main objective of these teaching scenarios was to encourage open learning approaches. Many of them were implemented successfully in real secondary education classroom settings from Science, Mathematics, Foreign language and History teachers. More such teaching scenarios were developed from the first teachers who were trained from these teacher trainers. The impact of the use of ICT within these teaching scenarios on students' learning was evaluated in an international research organised and coordinated by OECD. The research investigated the extent to which ICT was used as a catalyst or a lever for educational innovation. The teaching scenarios described below have been implemented in real school settings and were considered "good practice".

(ii) What are the main intentions in integrating IT in this course or experience?

The main aim of the teaching scenarios that were evaluated as innovative and examples of good practice was to encourage students' autonomy in learning, promote collaborative and exploratory learning.

(iii) How are the students evaluated? With what criteria or indicators?

Students' performance was not evaluated on the specific activity.

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

The activity lasted for one teaching session. The teacher explained briefly the activity and aims of the task and students worked in groups, collaborating on a worksheet with specific tasks given by the teacher. Each group had a common worksheet. The worksheet encouraged students to speculate, collect and process information and data, make experiments and conclude. Students at the last part of the session presented their work to their classmates.

The teacher performed as a facilitator when students asked for help, prompting students for further action.

(v) Student activities: assignments, communications, group work vs individual work

Students formulated hypotheses, used ICT (Internet, CD-ROMs, simulations) to collect and process information and data, and tested their hypotheses. Students worked in groups. At the end of the session they presented their work to their classmates.

(vi) What technology is used? Is there available technical support?

Different ICT tools were used in these sessions. Many of them used Internet as a source of information or even as a source for simulation programs. Others used CD-ROMs while others used exploratory software.

The schools that implemented these scenarios had a technical assistant who was present in the implementation of the teaching scenario. The technical assistant helped teachers to find the internet sites and download it to the students' desktops.

(vii) What are the instructional materials and resources used and how do the students access them?

Teachers developed a worksheet for the students to work on. The worksheets included questions and activities for students to follow. The activities proposed encouraged students' investigations.

(viii) Are there other learner services available through ICT?

(ix) Are there known pedagogical results with this practice?

The above described teaching scenarios were considered innovative in the sense that they escaped from memorisation of facts and focused on students' investigations through collaborative work.

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

The above teaching scenarios described were evaluated through the international research coordinated by OECD. In Greece five case studies were employed and twelve teaching sessions were observed and analysed in each school. A number of them were found to follow the above described strategies which were considered innovative as cited in the above section.

(xi) Has this "good practice" been officially recognized, "labelled", presented in conferences? If so, when and by whom?

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

(xiii) Could a peer review⁹ visit be organised? Can you suggest possible dates?

(xiv) Contact reference for the initiative

Educational Research Centre
Athens
Ellas - Greece
Petros Matzakos

⁹ See previous page.

HUNGARY

A. Examples of good policy practice in integrating ICT in education and initial vocational education IN HUNGARY

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus, or other? By whom?

The policies listed below have been elaborated and put into action by the Hungarian ministry of Education and its affiliate, the Hungarian Schoolnet Network. Previous consultations involved all stakeholders (e. g teachers' professional organisations, ICT experts, educational researchers, parent associations.) National conferences and workshops are constantly being organised to refine and complete the projects and disseminate their results. The Schoolnet web site (www.sulinet.hu, partly in English) publishes daily updated information on grants, PC and software distribution campaigns, new teaching aids and related educational programmes. Research on computer skills and use of digital learning environments is co-ordinated and monitored by the "ICT in Education" Commission of the National Academy of Science, Committee on Education. (English website available from March 2003)

Examples of good national policies for educational computing from Hungary:

1. Sulinet (Schoolnet) Internet Provision Project (abbreviation: **Schoolnet**)
2. Digital Teaching Materials Project (abbr. **DTMP**)
3. In-Service Teacher Education Project (abbr. **ITEP**)
4. e-World: digitalisation of treasures of Hungarian cultural heritage and international art works housed in public collections
5. e-Generation: provision of content for children and youth
6. e-Chance: expansion of community Internet centres

Projects 1-3 will be briefly described in this document.

(ii) Description of the policy: target groups, duration, outcomes

1. **Schoolnet:** aim: omputerisation of Hungarian schools, a major national investment co-ordinated by the Schoolnet Office of the Hungarian Ministry of Education has connected all Hungarian secondary schools and 30 % of primary schools to the Internet, provided them with a computer laboratory and introductory software package and support services. The Schoolnet Office employs a large group of subject specialist part-time who create a weekly updated, authentic content-rich and therefore increasingly popular web site: <http://www.sulinet.hu>. The bandwidth of transmission for the Internet is currently being expanded and by 2005, all primary schools will be connected.
2. **DTMP:** aim: elaboration of a system of reusable learning objects (RLOs) organised in a content management system to provide up-to-date, pedagogically and scientifically reliable content for our national Core Curriculum.
3. **ITEP** aim: based on research results and experiences of good practice, elaboration of a set of in-service teacher training programmes based on the special needs of ICT teachers, non-specialists (K-12), educators of mentally and/or socially handicapped, institutions of reform pedagogy, school system managers, associates of public collections and museums. All these groups are offered computer purchase grants with compulsory training component. Training utilises experiences of ICT Model Schools, a network of excellence organised by the Hungarian Schoolnet.

(iii) Known opinions, reactions, appreciation of those concerned by the policy: teachers, students, administration, parents, other.

1. **Schoolnet:** local authorities provide matching grants to complete government-sponsored computer purchases. Leaders and school staff make increasing use of the educational portal. The majority of parents is enthusiastic about the profound ICT training and take part in parent computer purchase programmes.

2. **DTMP:** project meets general need of teachers for cheap, flexible, adapted to the national curriculum learning resources. Competition for teachers to conceive and develop educational software or RLOs is being evaluated at present.
3. **ITEP:** every Hungarian teacher is obliged to complete an in-service training course once every 7 years – ICT courses are among the most popular. PC purchase grants are financially supported by local educational authorities and school management.

(iv) What are the criteria for qualifying this practice as “good”: who qualifies it and why?

1. **Schoolnet:** constant monitoring is undertaken by subject specialists employed by the Schoolnet Office and independent experts.
2. **DTMP:** project started in 2002. RLOs are evaluated by subject specialists and ICT experts. School experiments to utilise and assess learning objects are planned to be organised.
3. **ITEP:** an expert panel has been set up by the Hungarian Schoolnet Office to evaluate training programmes and prepare criteria for the national accreditation process that grants credit value to courses. All existing and new course programmes will undergo thorough evaluation starting in 2003.

(v) Are there any known pedagogical results obtained with this policy?

1. **Schoolnet:** Hungarian students rank among the best at ICT Student Olympics, attain good results at international surveys (SITES, IEA, OECD/ICT Survey). Home page competitions elicit responses from every second Hungarian school.
2. **DTMP:** the first RLOs elaborated within this new project are being widely used in education. Hungary was invited to participate in the CELEBRATE project of the European Schoolnet with similar targets (elaboration of RLOs).
3. **ITEP:** due to discipline-based training, the use of ICT technology by non-specialist teachers is on the increase in the last 3 years.

(vi) Is there a European dimension to this policy? If any, could you describe it?

1. **Schoolnet:** as almost all European countries have set up national Schoolnet Networks, it would be very important to compare results and experiences.
2. **DTMP:** international projects like CELEBRATE show that there is a constant need for RLOs all around Europe. A European clearinghouse for RLOs would be an excellent support for the dissemination of good ICT practices.
3. **ITEP:** training programs for the handicapped seem to represent a growing European concern. Hungarian results may be useful to compare.

(vii) Could a peer review¹⁰ visit be organised? Can you suggest possible dates? Yes – in school term periods (mid-September – mid-June) with 2 months advance notice.

(viii) Contact reference for the initiative

Contact for all three projects:

Tamás Könczöl, Research Director, Hungarian Schoolnet Office: kabo@sulinet.hu

Tel.: 36-1-477-31-67 Fax: 36-1-477-31-88 Mobile: 36-30-466-15-22

¹⁰ A peer review is one of the methods indicated as a way of sharing good practice within the context of the Open Method of Coordination. It will involve a visit by a number of expert colleagues (peers) to document and study the example of good policy practice. It could include meetings with policy makers, meetings with those responsible for the delivery of the policy, and its implementation on the ground, and an opportunity to exchange views with colleagues throughout the visit in order to determine what may be of interest for individual participants. Normally a visit would include 2/3 members of the expert group, an academic expert, and a Commission official.

B. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

From among the numerous projects on ICT in education, 3 have been selected to show the range of Hungarian activities in this field:

1. "Discipline-Based ICT Research project and Training for Teacher Education (**DBRT**)
2. Capacity Building Internet Projects in Telecottages (**CBIP**)
3. "ICT Cross-curriculum" – (**ICC**)

ii) What are the main intentions in integrating IT in this course or experience?

1. **DBRT:** the UNESCO Centre for ICT in Education (www.edutech.elte.hu) conducts research on the structure and development of ICT related skills and competencies of teachers and students. In 2000-2002, a 2-year teaching experiment conducted in 50 Hungarian schools provided discipline-based ICT use models, assessed existing learning tools and compiled textbooks, CD-ROMs and video films on good practice. Based on these results, a distance learning environment was elaborated to support pre-and in-service teacher education.
2. **CBIP:** Teaching with Multimedia [TEAM] Lab at Eotvos Lorand University was established in 1997 within the Informatics Methodology Group involved with Informatics teacher training (www.team-lab.ini.hu). Its aim is the application, teaching, experimentation, evaluation, research and development of innovative multimedia tools and methodologies for the benefit of effective learning and developing skills. R&D includes the ergonomics and content development of educational applications, authoring tools, Internet and telematic environments, and evaluation of their effects in the learning process. This pilot project involves children from tele-houses, (tele-cottages), learning communities in Hungary using two Web Based Learning materials developed by TEAM Lab and mentored by future informatics teachers.
3. **ICC:** this teacher training material elaborated by a team of more than 100 primary and secondary school teachers under the joint leadership of our national Association of IT Teachers and the National Institute for Educational Research, is aimed at disseminating good practice on the integration of ICT tools, methods and computer-based digital teaching aids in primary and secondary education. In Hungary, IT is a compulsory discipline thus teachers of other subjects often feel discouraged to include ICT in their educational repertoire. This set of good examples, all tried and tested, peer-reviewed and provided with a detailed description of the learning process, are aimed at providing models for adaptation for all areas in the National Core Curriculum.

(iii) How are the students evaluated? With what criteria or indicators?

1. **DBRT:** a pre- and post-test method to assess learning to learn skills, ICT-related knowledge and skills as well as computer use patterns and attitudes towards ICT have been administered as part of the teaching experiment. During the project, collaborative and pair work was used for authentic evaluation of task-related skills and regular knowledge tests (written and oral) were used by teachers to monitor progress. An interactive, adaptive testing environment (MOVELEX, www.movelex.hu) developed by Violasoft, a Hungarian firm, was also used for the construction of PC-based, individualised tests.
2. **CBIP:** tele-mentoring is used for the assessment of student progress. Mentors are supposed to: (a) visit their assigned tele-house as often as they can, possibly

once a month and maintain good contact with all children and local helpers; (b) acquire information about the local situation, individual and group problems, and find ways for motivation; (c) answer letters and provide a fixed weekly slot for synchronous communication (d) guide each child (group) individually and provide continuous evaluation on each child's (group's) progress.

3. **ICC:** curricula have been evaluated through a peer review system. Remarks of reviewers related to student progress evaluation methods as well and were incorporated in the final document. When in use, ICT-enriched cross-curricular projects are assessed in accordance with the evaluation and marking system of the given disciplines involved.

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

1. **DBRT:** pedagogical methods included the constructivist repertoire with special emphasis on individualised instruction, authentic tasks and an integration of hands-on and digital experiences in the natural science and art disciplines. Teacher-teacher interaction was facilitated through the creation of a discussion forum and learning portals for each discipline. Students used e-mail and chat for project work.

2. **CBIP:** two Web Based Learning [WBL] materials were used: *NETLogo* and *Creative Communications*, both developed by at TEAM Lab. These materials suggest a constructivist approach allowing different learning styles to emerge: *NETLogo* provides self-paced discovery learning with individual guidance, while *Creative Communications* provides project based group-learning with collaboration and group-mentoring. The WBL material domains provided adequate freedom of choice and progress, for children. When problems occurred, they first consulted with peers, and later with local helpers if consultations did not result in a proper solution. In case a problem could not be solved locally, the children then consulted with the mentors.

3. **ICC:** curricula include constructive learning methods (discovery learning, cognitive apprenticeship, collaborative learning) as well as traditional methods of instruction with the use of ICT.

(v) Student activities: assignments, communications, group work vs individual work

1. **DBRT:** The instructional design principles underlying the two course materials included both objectivist and constructivist learning design models. Assignments varied according to the needs of the 6 disciplines included in the project: mathematics, physics, chemistry, biology, foreign languages and art education / art history. Creative use of ICT tools was highlighted in all 6 areas (e.g. design of virtual experiments, digital art tasks, Web search in using information sources of native language environments.)
2. **CBIP:** In all tele-houses children could choose which WBL material they wanted to assign themselves to and had to progress through its stages: on individual paths in case of *NETLogo*, and through predetermined project work in case of *Creative Communications*. Work initiated from the starting point advised by the mentor. Further assistance and coaching was provided by the mentor: individual coaching in case of *NETLogo*, and group-coaching in case of *Creative Communications*. Children mainly worked in pairs of 2-3 or double that size, where pairs often arose from originally existing friendships or family ties.

3. **ICC:** the curricula emphasise the integrated use of ICT and encouraged the formation of cross-disciplinary teacher teams. Project work is a standard feature and group activities interrelate with individualised and frontal instruction.

(vi) What technology is used? Is there available technical support?

(vii) What are the instructional materials and resources used and how do the students access them?

1. **DBRT:** computer labs with 12-16 multimedia, Pentium II-III PCs were used with the usual accessories. A wide variety of educational and open software packages are used in the curricula that target all age groups and disciplines of primary and secondary education in Hungary. A complete list by discipline can be provided upon request.
2. **CBIP:** local tele-houses provided multimedia computers, scanner, digital camera, digital drawing-pad, colored printer, laser printer, and CD writer that can be accessed for a fair amount of time suiting children's time schedules. (2) Adequate amount of licenses from necessary software tools (Microsoft Windows and Office, Internet Explorer, FrontPage, Flash, Cool Edit, Corel Print Office, and Comenius Logo), Internet and e-mail facility.
3. **ICC:** a wide variety of educational and open software packages are used in the curricula that target all age groups and disciplines of primary and secondary education in Hungary. A complete list by discipline can be provided upon request.

(viii) Are there other learner services available through ICT?

Not applicable for the projects described.

(ix) Are there known pedagogical results with this practice?

1. **DBRT:** ICT-enriched teaching in the six discipline resulted in increased motivation, quicker acquisition and better retention of knowledge, increased learning to learn skills and a more profound understanding of processes due to a multi-sensory introduction of concepts and rules.
2. **CBIP:** children living in remote underdeveloped areas succeeded in mastering not only basic ICT skills, but also developed fluency in expressing oneself with different tools, as well as learned the basics of learning at a distance. Most children are confidently using e-mailing as a new form of social communication and a lot of children continued their studies in fields of informatics. Student teachers tele-mentoring children's activities learned: about the needs of children, different methods and tools to develop skills, how to motivate and evaluate, and the different platforms of ICT use in everyday life and expression. Local communities realised the potentials of ICT and continued support for similar projects.
3. **ICC:** the recent publication and dissemination of the manual in web-based and CD form will hopefully increase the discipline based and interdisciplinary use of ICT and assist non-specialist teachers in their efforts to enrich their teaching practice with the models provided for successful ICT-supported education.

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

Grant application review committees, journal reviewers and national expert panels have reviewed the three projects listed here and found them excellent. The chief investigators of DBRT and CBIP have been recognised with national and international (US) research awards for their performance.

(xi) Has this “good practice” been officially recognised, “labelled”, presented in conferences? If so, when and by whom?

Yes, all three projects have widely been presented at conferences. Special events (workshops, national conference sessions) have also been organised as part of the dissemination procedure.

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

Yes – types of instruction and content provided represents a high quality, cross-cultural teaching programme for all three projects. Problems targeted (discipline-based teacher education, teaching of programming skills for disadvantaged students in small settlements, interdisciplinary use of ICT) are among those identified as highly relevant for the successful integration of ICT in European education.

(xiii) Could a peer review¹¹ visit be organised? Can you suggest possible dates? Yes – in school term periods (mid-September – mid-June) with 2 months advance notice.

(xiv) Contact reference for the initiative

1. **DBRT:** Dr. Andrea Kárpáti, Head, UNESCO Centre for ICT in Education, Eötvös Loránd University, Faculty of Sciences, Budapest. E-mail: karpatian@axelero.hu, Tel.: 00-36-30-211 4936
2. **CBIP:** Dr. Márta Turcsányi, Head, TeamLab, Eötvös Loránd University, Faculty of Sciences, Budapest. E-mail: turcsanyine@ludens.elte.hu Tel.: 00-36-30-9829 906

ICC: Dr. Márta Körösné Mikis, National Institute for Educational Research,

¹¹ See previous page.

LUXEMBOURG

A. Examples of good policy practice in integrating ICT in education and initial vocational education

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus, or other? By whom?

Elaboration par un GT déchargé par le Script

(ii) Description of the policy: target groups, duration, outcomes

destiné aux classes de 4^e (réformée), durée 1 an pour la phase de lancement, intégration au cours de français, activité obligatoire

(iii) Known opinions, reactions, appreciation of those concerned by the policy: teachers, students, administration, parents, other.

les attentes, réactions, réticences ont été préalablement anticipées et sondées lors de formations continues

(iv) What are the criteria for qualifying this practice as “good”: who qualifies it and why?

critères de qualité : actualité, pluridisciplinarité, caractère multimédia, variabilité des approches, ouverture, implémentabilité, flexibilité, mobilité

(v) Are there any known pedagogical results obtained with this policy?

l'activité est en cours ; la phase d'évaluation va commencer

(vi) Is there a European dimension to this policy? If any, could you describe it?

le contenu concerne aussi l'actualité mondiale et des thèmes comme la xénophobie, le racisme

(vii) Could a peer review¹² visit be organised? Can you suggest possible dates?

peer review possible

(viii) Contact reference for the initiative

georges.barthel@men.lu

remarques: 1. documentation détaillé sur www.elabotic.lu – cliquer sur “français”
2. sur le même site on peut voir le reste du projet, qui fonctionne de façon analogue, mais dont s'occupent d'autres groupes de travail, et je n'en connais pas tous les détails.

¹² A peer review is one of the methods indicated as a way of sharing good practice within the context of the Open Method of Coordination. It will involve a visit by a number of expert colleagues (peers) to document and study the example of good policy practice. It could include meetings with policy makers, meetings with those responsible for the delivery of the policy, and its implementation on the ground, and an opportunity to exchange views with colleagues throughout the visit in order to determine what may be of interest for individual participants. Normally a visit would include 2/3 members of the expert group, an academic expert, and a Commission official.

B. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

niveau : 7^e (12 ans), 1 h hebdo intégrée au cours de français ; activité obligatoire, sujet ouvert

(ii) What are the main intentions in integrating IT in this course or experience?

améliorer l'expression écrite en utilisant l'outil informatique (le traitement de texte)

(iii) How are the students evaluated? With what criteria or indicators?

évaluation en fin de trimestre sur la qualité de la production écrite

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

travaux individuels ou en groupe ; l'enseignant est une personne-ressource et assisté par un enseignant-technicien

(v) Student activities: assignments, communications, group work vs individual work

surtout travaux en groupe : recherche, composition, écriture, réécriture (sorte d'atelier d'écriture)

(vi) What technology is used? Is there available technical support?

PC individuels ; depuis peu, laptops sans câble sur chariots

(vii) What are the instructional materials and resources used and how do the students access them?

Brochure en vente : « Initiation à l'outil informatique », éditée par le MEN, Lux., ISBN 2-495-06404-3. Achat obligatoire par l'élève.
Livret du maître et exercices numérisés en ligne sur le site myschool.lu

(viii) Are there other learner services available through ICT?

???

(ix) Are there known pedagogical results with this practice?

Documentation sur support papier et liste nationale sur <http://www.script.lu/activinno/frantic/home.phtml> / meilleur exemple de bonne pratique téléchargeable sur <http://www.script.lu/documentation/pdf/publi/frantic/frantic-carolinelentz.pdf> , et joint à ce dossier

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

Le bureau TIC au Script ; critères de qualité des productions (qualité linguistique, investissement, caractère transdisciplinaire et collaboratif)

(xi) Has this “good practice” been officially recognized, “labelled”, presented in conferences? If so, when and by whom?

Publication officielle sur le site myschool.lu (appui ministériel)

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

Intérêt général

(xiii) Could a peer review¹³ visit be organised? Can you suggest possible dates?

Oui, mais pour d'autres classes, cet exemple datant de l'an dernier

(xiv) Contact reference for the initiative

georges.barthel@men.lu

¹³ See previous page.

MALTA

A. Examples of good policy practice in integrating ICT in education and initial vocational education

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus, or other? By whom?

Educ Division

(ii) Description of the policy: target groups, duration, outcomes

ICT in Secondary Sector

(iii) Known opinions, reactions, appreciation of those concerned by the policy: teachers, students, administration, parents, other.

Teachers: ICT teachers positive attitude, co-operative.

Students & Parents: Very keen on the use of ICT in schools

Administration: Accepted changes implied by ICT and showed co-operation

(iv) What are the criteria for qualifying this practice as “good”: who qualifies it and why?

Formal criteria not established but professional commitment of teachers is monitored by Education Officers who form part of the Educational setup

(v) Are there any known pedagogical results obtained with this policy?

Students make use of the ICT skills learned in their normal schoolwork projects, research and also at home.

(vi) Is there a European dimension to this policy? If any, could you describe it?

Yes, participation in Comenius Partnership projects with other European Countries by communicating via e-mails and collaborating through Web sites

(vii) Could a peer review¹⁴ visit be organised? Can you suggest possible dates?

(viii) Contact reference for the initiative

A per visit can be organized preferably in April/May 2003 through the ICT Learning Centre, Educ. Division

B. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

ICT is fully integrated in the teaching of Mathematics in all secondary schools. Maths teachers have been trained for a duration of one year in using interactive Maths programs such as Cabri and Logo.

(ii) What are the main intentions in integrating IT in this course or experience?

¹⁴ A peer review is one of the methods indicated as a way of sharing good practice within the context of the Open Method of Coordination. It will involve a visit by a number of expert colleagues (peers) to document and study the example of good policy practice. It could include meetings with policy makers, meetings with those responsible for the delivery of the policy, and its implementation on the ground, and an opportunity to exchange views with colleagues throughout the visit in order to determine what may be of interest for

The enhancing of teaching and learning in a constructivist approach.

(iii) How are the students evaluated? With what criteria or indicators?

Formative assessment during their lessons and also a limited summative assessment as part of the annual exam paper.

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

Teachers are encouraged to use guided discovery approaches combined with focused directed teaching. Lessons are hands on and interactive conducted in computer labs for mathematical lessons once a week.

(v) Student activities: assignments, communications, group work vs individual work

Students work in small groups of two or three throughout the lessons and are given tasks to solve hands-on

(vi) What technology is used? Is there available technical support?

Networked computers link all schools with limited support at school level (on site) but full support through third parties on a national scale.

(vii) What are the instructional materials and resources used and how do the students access them?

Maths Subject software is present on all PC's and this is supported by teachers' worksheets and exercises. Students access software directly on PC's in school labs.

(viii) Are there other learner services available through ICT?

The ECDL course has been integrated in the teaching of ICT making it possible to acquire this passport.

(ix) Are there known pedagogical results with this practice?

The ECDL initiative has been launched this year and result will be monitored with conclusions drawn up next year.

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

Results for this practice will be evident from tests taken by students.

(xi) Has this “good practice” been officially recognized, “labelled”, presented in conferences? If so, when and by whom?

Official recognition has been given as from the beginning of the present scholastic year by the Education Division

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

The ECDL certification is recognized all over Europe and thus has a wide dimension.

(xiii) Could a peer review¹⁵ visit be organised? Can you suggest possible dates?

It could, preferably OCT to DEC 2003

(xiv) Contact reference for the initiative

ICT Learning Centre.

¹⁵ See previous page.

NORWAY

Meeting preparation: Finding examples of good policies and good practices in integrating ICT in education and initial vocational education

“Good practise” is a difficult concept to specify. What is “good practise” may not be good in another country. Good practice with ICT in education is often dependent on the cultural, historical, or developmental context within which it is observed. Nonetheless, because this is an European comparative debate, it is important to provide a common frame of reference for this term. For this debate, the frame of reference could be to define “good practices” as innovation”; to prepare students for lifelong learning in the information society. Some examples of practices that countries might consider to be “good” and innovative are those that:

- Promote active and independent learning in which students take responsibility for their own learning, set their own learning goals, create their own learning activities, and/or assess their own progress and/or the progress of other students.
- Provide students with competencies and technological skills that allow them to search for, organize, and analyze information, and communicate and express their ideas in a variety of digital media forms.
- Engage students in collaborative, project-based learning in which students work with others on complex, extended, real-world-like problems or projects.
- Provide students with individualized instruction, customized to meet the needs of students with different entry levels, interests, or conceptual difficulties.
- Address issues of equity for students of different genders or ethnic or social groups and/or provide access to instruction or information for students who would not have access otherwise because of geographic or socioeconomic reasons.
- “Break down the walls” of the classroom—for example, by extending the school day, changing the organization of the class, or involving other people (such as parents, scientists, or business professionals) in the education process.
- Improve social cohesiveness and understanding by having students interact with groups and cultures that they would not interact with otherwise. These criteria and these examples can be a common starting point for all countries. Below, we specify with examples from Norway.

Identifying “good policies and good practices”

A_PLUTO

Programme for Teacher Education, Technology and Change

Examples of good policy practice in integrating ICT in education and initial vocational education

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus, or other? By whom?

PLUTO

Programme for Teacher Education, Technology and Change (PLUTO), which stands for Programme for Teacher Education, Technology and Change, is an initiative in the Research and Competence Network for IT in Education’s (ITU) priority focus on innovative change in teacher education. The programme is anchored in The Ministry of Education’s action plan



“ICT in Norwegian Education – Plan for 2000-2003”¹⁶, where ICT in teacher education is one of six prioritised areas.

PLUTO was initiated by ITU. Autumn 2000 PLUTO was extended to eight institutions and ten projects. This was both a result of the termination of the Workgroup for Digital Teaching Aids' focus on teacher education and the fact that the Ministry of Education wanted to concentrate the support of teacher education in one project. The focus is on organisational and pedagogical innovations within the institutions, based on a total integration of ICT.

(ii) Description of the policy: target groups, duration, outcomes

The PLUTO-programme is anchored in the Ministry of Education's Action plan (2000-2003). Teacher education is a priority in the action plan, and the following challenge is directed towards pre-service teacher education: “ ICT provides new opportunities for practising open and flexible study methods. Prospective teachers will have to be able to make use of the opportunities - to develop their own skills and to be able to advise students in school situations where learning and teaching become ever more learner-directed. A basis for such skills must be created during the study period by employing new study methods and by project work. The teacher training institutions must overcome these challenges”. The main goal of PLUTO is: **To contribute to innovative restructuring of teacher education through the use of ICT.** To develop pedagogical and organisational models for the adaptation and accomplishment of study and learning activities in teacher education, where ICT makes up a substantial part.

The focus is on developing a national standard of quality which it comes to pedagogical and didactical use of ICT, partially through call for projects and partially through funds allotted to the subject nodal points. Measures for integrating ICT in teaching at all teacher education institutions (“broad investment”). Supplementing the cutting edge investment is a comprehensive measure to fund and support various projects and activities (including training of staff) to implement ICT in teacher colleges. As part of this measure all teacher colleges have set up individual plans for ICT training and implementation in curricula and study programmes in 2000-2003. Competence development in schools. Increasing competence is to give a better foundation for an increased and bettered activity from the side of the institution, directed towards competence in school.

(iii) Known opinions, reactions, appreciation of those concerned by the policy: teachers, students, administration, parents, other.

Experiments and new practices where ICT has been courageously applied to teacher education have been motivating and important experiences for the participants.

(iv) What are the criteria for qualifying this practice as “good”: who qualifies it and why?

Innovative practice in PLUTO projects involve changes in what it is that teachers and students do and learn in the classroom. PLUTO show evidence of changes in roles of the students and teachers, changes in assessment practices, use of new digital educational materials and new infrastructure. The “good” practice is different from traditional practices in mainstream teacher education. The emerging practices are providing students with a different set of skills and competencies that they need as they extend their learning throughout their lives in the information society

One case is: Østfold University College (OUC); The general idea is to integrate ICT into the teacher education and change the working methods and contents in the direction of more

¹⁶ <http://www.dep.no/kuf/engelsk/publ/veiledninger/015081-990004/index-dok000-b-n-a.html>

project based and problem based work. ICT is also the foundation for changes in the practicum. All students and teachers work with high-speed GSM connection to the Internet/WLAN and have their own laptops. The aim is to give the students necessary ICT skills through active use of technology in their studies. The project has developed a cooperative network that comprises the general teacher training and 13 elementary schools in Østfold. This is a full-scale implementation of ICT in a new, pedagogical context. ICT becomes an important tool for both students and teachers in their study work, but it also serves as a medium for communication and learning in the practical training.

(v) Are there any known pedagogical results obtained with this policy?

ICT in teacher education shifts the emphasis away from lectures, where students passively take in information which they are expected to parrot back, towards more active ways of acquiring information. Experiments and new practices where ICT has been courageously applied to teacher education have been motivating and important experiences for the participants. At the same time, there has also been the danger that innovative practices enrich only project participants, without enabling other students or teachers to benefit from experiences gained in projects. A national web-site; LUNA developed dynamically (based on Topics Maps Standard; a Semantic Web) generated results from projects and share the collective knowledge from innovative practice.

(vi) Is there a European dimension to this policy? If any, could you describe it?

(vii) Could a peer review¹⁷ visit be organised? Can you suggest possible dates?

(viii) Contact reference for the initiative

<http://luna.itu.no/>

¹⁷ A peer review is one of the methods indicated as a way of sharing good practice within the context of the Open Method of Coordination. It will involve a visit by a number of expert colleagues (peers) to document and study the example of good policy practice. It could include meetings with policy makers, meetings with those responsible for the delivery of the policy, and its implementation on the ground, and an opportunity to exchange views with colleagues throughout the visit in order to determine what may be of interest for individual participants. Normally a visit would include 2/3 members of the expert group, an academic expert, and a Commission official.

B WISE

B. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

The Web-based Inquiry Science Environment (WISE) project will be used to demonstrate what may be defined as good pedagogical practice in introducing IT into science classrooms in Norway. The Norwegian version of WISE is called Viten: <http://viten.no>

Level: Secondary and upper secondary schools.

Many of the modules are based on scientific controversy. The students get a chance to both construct and visualize knowledge via several types of net-based tools, such as simulations. The students collaborate both in pairs and through discussions.

(ii) What are the main intentions in integrating IT in this course or experience?

When we integrate the use of ICT into the science classroom, we are introducing possibilities that never before existed in how to teach and learn science. Through the use of the Internet, we are able to provide authentic data for students allowing them the possibility to make connections between basic knowledge and applications of that information. We are able to create simulations and animations, able to present scientific concepts in new dimensions making what often are difficult ideas in science more accessible to students. ICT allows us to help students access, evaluate and make use of information that connects science to society and decision-making processes. Without question, the use of ICT in science teaching means that students are allowed to explore and ask questions about science rather than be passive recipients of information.

(iii) How are the students evaluated? With what criteria or indicators?

- **Students learning strategy in science.**
- **Development of the students ability for scientific argumentation.**
- **Knowledge developments.**
- Pre- and post test scores on open ended questions were evaluated using a coding system of 0-3 for responses. All classes show gains as they complete the project. It was not unexpected that student logs would reflect positive attitudes about using ICT in science teaching. Our experience is that students like most things connected to computers and with variation in teaching methods. A common comment in the student logs was "give us more WISE/Viten". The positive comments we found most often included using computers in science and learning more about malaria and disease. On the negative side, we have learned that students at this age do not like reading lots of text on the computer. Particularly, in Norway, students thought they were asked to read too many difficult English links.

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

The WISE/Viten learning environment, curriculum and assessments are all designed according to the *Scaffolded Knowledge Integration* (SKI) Framework. This framework has been continuously refined through years of classroom trials, comparing different versions of technology tools, different approaches to guidance, and different designs for curriculum. The WISE/Viten learning environment is developed to scaffold students as they work with inquiry based science projects. By encouraging learners to connect new ideas and perspectives to their existing ideas about the scientific phenomenon under investigation, the framework promotes cohesive understanding. Students compare, contrast, critique, sort out, and reconceptualize their scientific ideas, incorporating new information, evaluating alternative accounts, and connecting everyday and scientific ideas. Our goal is to help students become lifelong learners of science, critiques of information, and collaborators in argument.

(v) Student activities: assignments, communications, group work vs individual work

The framework includes four major principles that guide the design of successful inquiry activities and technologies. *First, make science accessible:* Inquiry curriculum requires an appropriate level of analysis of the scientific content so that students can restructure, rethink, compare, critique, and develop more cohesive ideas. *Second, make thinking visible:* Inquiry curriculum should challenge students to articulate what they know and mean about scientific topics so that they are able to restructure their thinking when new ideas are presented. *Third, help students learn from each other:* Inquiry curriculum should include opportunities for collaboration, discussion and debate, enabling students to articulate their own ideas for their peers, as well as to receive and exchange feedback. *Fourth, help students develop autonomous learning skills.* To help students become autonomous science learners, inquiry curriculum can enable the development of lifelong learning skills such as critiquing evidence, debating arguments, or designing solutions to relevant problems.

(vi) What technology is used? Is there available technical support?

The WISE/Viten servers deliver interactive Web pages and curriculum materials to schools, as well as manage and store students' project and assessment work. WISE/Viten include a number of student software tools, including a note-taking tool, on-line assessment, a Web-based discussion tool, concept mapping and argument building tools, search pages, student/teacher generated quizzes and web-based newspapers. Additionally, external tools and pages from the Internet are easily made to function within the software. Whereas the WISE/Viten server is located in at a University(NTNU) where the software development is developed. Viten projects have free access and are available to all teachers and

schools with Internet connections.

(vii) What are the instructional materials and resources used and how do the students access them?

Typical projects engage pairs of students in *designing* solutions to problems (e.g., building a desert house that is warm at night and cool during the day), *debating* contemporary science controversies (e.g., should we have wolves in Norway?), or *critiquing* scientific claims found in web sites (e.g., vaccine or pesticide research best for Malaria control?) WISE/Viten curriculum projects do not replace existing practices in science teaching; rather, they enhance them by providing a new means of presenting science. WISE/Viten projects are often used at the end of topics, where teachers are looking for a “capstone” project able to connect science to contemporary issues in society.

In the WISE interface where students navigate through activity steps in the left-hand frame of their Web browser, called the "Inquiry Map." Each step in the project can result in the display of Webpages (e.g., to be used in support of student designs or debates), in the appearance of the WISE notes window, an online discussion, or any one of numerous inquiry tools (e.g., Java applets for data visualization, Flash simulations, and causal maps). As pairs of students work through the sequence of activities that comprise the project, the teacher circulates within the classroom, interacting with one small group of students at a time, helping them interpret Web materials, reflect on the topic and interact with their peers.

(viii) Are there other learner services available through ICT?

(ix) Are there known pedagogical results with this practice?

Report in print...

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

(xi) Has this “good practice” been officially recognized, “labelled”, presented in conferences? If so, when and by whom?

Nobel Symposium (NS 120) “Virtual Museums and Public Understanding of Science and Culture”

May 26-29, 2002, Stockholm, Sweden **Good Practice in Using the Internet and Information**

Technology in Teaching and Learning Science by Doris Jorde, University of Oslo, Norway

dorisj@ils.uio.no

Telelearning 2001, Vancouver 10th Nov 10. *The K12 Learner and Teacher of the Future*, Morten Sjøby (ITU, University of Oslo)

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

Global dimension.

(xiii) Could a peer review¹⁸ visit be organised? Can you suggest possible dates?

(xiv) Contact reference for the initiative

<http://viten.no>

¹⁸ See previous page.

POLAND

Witold Kranas

witek@oeiizk.waw.pl

A. Examples of good policy practice in integrating ICT in education and initial vocational education

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus, or other? By whom?

LOGIA - Informatics Contest (programming in Logo). Organized by Computer Assisted Education and Information Technology Centre, approved by Regional Education Board Director.

(ii) Description of the policy: target groups, duration, outcomes

Lower secondary school pupils; 3 stages during 5 month period (organized yearly for the last 9 years); around 30 laureates. This year 807 students took part in the first stage, 401 qualified for the second stage.

(iii) Known opinions, reactions, appreciation of those concerned by the policy: teachers, students, administration, parents, other.

Growing interest among students - it has been proposed to organise vocational workshops for students, to introduce other programming languages e.g. Logo.

(iv) What are the criteria for qualifying this practice as “good”: who qualifies it and why?

Teachers and parents opinions.

(v) Are there any known pedagogical results obtained with this policy?

Most talented students are distinguished, and carry on developing their potential.

(vi) Is there a European dimension to this policy? If any, could you describe it?

Laureates of this contest are taking part in Informatics Olympics, where the best compete on the international level.

(vii) Could a peer review¹ visit be organised? Can you suggest possible dates?

(viii) Contact reference for the initiative

Yes, contact person: Mr. Krzysztof Chechlac, e-mail: kch@oeiizk.waw.pl

B. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

Postgraduate study for teachers: Information Technology Education for school IT coordinators; 1 year (2 semesters); Wroclaw University and Computer Assisted Education and Information Technology Centre.

(ii) What are the main intentions in integrating IT in this course or experience?

School IT coordinator is able to: prepare students to use computers; train other teachers in his school in IT and helps them to run the courses; coordinate the implementation of computers and IT in his school and municipality.

“The teachers create the conditions for students to acquire the following skill:

The ability to search, put in order and utilize the information from different sources, and also the effective use of IT.” (extract from National Curriculum Basis - Ministry of Education, 1999)

(iii) How are the students evaluated? With what criteria or indicators?

Projects and all works are individually presented by students and appraised by teacher as well as other students.

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

Lectures, lab exercises, discussions, consultation, exchange of experiences.

(v) Student activities: assignments, communications, group work vs individual work

One study meeting lasts 3 days with total of 23h. Students are asked to submit many ongoing works, projects and at the end the final project. Subjects of those works are given long in advance, so students can prepare for the next activity period when they get a chance for consultation with the teacher whereas the teacher checks the progress of students work.

The condition to get the certificate is to complete all subjects and submit two individual projects and the final project.

One of the projects would have its subject individually tailored to the student's environment (kind of school, or subjects he/she teaches, area of interest).

The second project would be a report from students' own school based on his experiences/activities with implementing IT there. After review, the project is sent to the schools' director with the recommendation of tasks to be accomplished.

The final project should concern a chosen problem regarding methods of teaching IT and the use of information technology in teaching different subjects.

All students are guaranteed the appropriate working conditions by the directors of their schools (school directors are asked to sign the written declaration).

(vi) What technology is used? Is there available technical support?

New generation, multimedia computers connected to local network as well as the Internet, multimedia projectors, presentation equipment.

(vii) What are the instructional materials and resources used and how do the students access them?

Every student receives all publications and hourly notes, gets e-mail address and possibility to create web pages on the local server. Besides, all educational material can be access on the local network.

(viii) Are there other learner services available through ICT?

www.snti.pl (discussion forums, information exchange, support, publishing, conferences, meetings).

(ix) Are there known pedagogical results with this practice?

Many school IT coordinators created The Association of Information Technology Teachers (SNTI) which aims to support and help other IT coordinators.

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

Student opinions - they gain confidence in incorporating IT in lessons, are able to help their colleagues, gives opportunity for professional advancement .

(xi) Has this “good practice” been officially recognized, “labelled”, presented in conferences? If so, when and by whom?

**Approved and sponsored by Ministry of Education and Sport.
Presentation by director of Informatics Institute (Wroclaw University), M. Syslo at “Informatics at School” conference.**

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

Sorry, I cannot judge.

(xiii) Could a peer reviewⁱⁱ visit be organised? Can you suggest possible dates?

Yes, dates can be agreed with SNTI representative.

(xiv) Contact reference for the initiative

Aneta Marciszewska, SNTI, e-mail: aneta_marciszewska@snti.pl

PORTUGAL

NONIO

A. Examples of good policy practice in integrating ICT in education and initial vocational education

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus, or other? By whom?

Programme Nonio XXI Century (ICT programme for schools) was launched by the Ministry of Education late 1996, under provision on the Official Journal. Nonio was the natural evolution of the previous ICT Project that introduced new technologies in education «MINERVA Project» (1985-1992). The aim was the pedagogical use of ICT and added-value to the quality of learning. With the emergence of Internet, and connectivity in schools, new horizons were opened and Nonio Programme launched new measures, namely, incentives to the development of educational contents for the Web. The use of communication tools through the Web were gaining more and more adherents, among teachers involved in ICT school projects, financed by Nonio.

A Strategies and Action Plan document («Strategies for Action-ICT in Education») was published in March 2002, with the contribution of several central and regional departments.

(ii) Description of the policy: target groups, duration, outcomes

Nonio Programme developed in a context of much investment in ICT and awareness raising for the potentialities of these means. eEurope and eLearning Action Plans influenced national policies. Connectivity of schools started in 1997 and today, practically every school (from kindergarten to upper secondary) is (ISDN) connected. Many schools engaged in extra connections, for needs of broad band, resorting to cable and ASDL.

Nonio was created to have a duration of 3 years and was extended for more 3 years, under a ministerial dispatch issued in mid 2000.

Nonio Programme established 4 broad Actions:

- (i) School projects with financial support for 3 year long that included acquisition of equipment and functioning, almost 1.000 schools from kindergarten to upper secondary schools were financed. Fundamental to the support of these projects was the certification of institutions with expertise in the pedagogical use of ICT and previous experience and collaboration with basic and secondary schools that forms at present a knowledge network – Nonio Competence Centres;
- (ii) Teacher training in ICT – a few ODL courses took place targeted at teachers trainers to debate an ICT basic curriculum for teachers and a set of support materials were produced, focusing examples of activities for the different subjects, using ICT, these have been distributed (in a CD-ROM) to teacher training centres (about 200 in the country); studies based on surveys to know what kind of ICT offer was provided in pre-service and in-service teacher training have been published and freely distributed;
- (iii) Multimedia Contents Development – educational software awards have been offered since 1989; financial support to contents for the web, curricula materials and development of educational software have existed since 1997 (ie. about 75 projects of educational contents for the Web have been supported since then);
- (iv) International cooperation – participation and collaboration in several international work groups (eLearning, OECD «quality of learning», etc), member of Schoolnet and partner in several EUN projects, European initiatives like Netd@ays, eSchola, Consumer Competition, Spring Day, etc.

(iii) Known opinions, reactions, appreciation of those concerned by the policy: teachers, students, administration, parents, other.

Annual evaluation of school projects took place and a final and global evaluation over the three year long was completed and recently published and distributed in CD-ROM and made available on Nonio site. This global evaluation was compiled in three volumes,: (i) a report resulting from the data collected through questionnaires filled, yearly, by the school projects coordinators, (ii) Synthetic descriptions of each project – identification of school, objectives, activities, training and products, (iii) interviews made to school directors, teachers involved and not involved in the project, pupils/students, school staff, parents. Regarding contents development there's also a monitoring and annual evaluation, according to which funds are made available.

(iv) What are the criteria for qualifying this practice as “good”: who qualifies it and why?

The evaluation reports are grounded on surveys to the target-public. Studies have been produced based also on surveys to teachers and training centres.

(v) Are there any known pedagogical results obtained with this policy?

Positive pedagogical results are a consequence of new methodologies of teaching and learning with ICT. Pupils/students are more motivated working with these means and getting involved in teamwork and research work.

(vi) Is there a European dimension to this policy? If any, could you describe it?

The European dimension lies on the guidance of European Action plans and other international instances that have addressed these issues that is absorbed in national strategies and the direct involvement in European projects and initiatives.

(vii) Could a peer review¹⁹ visit be organised? Can you suggest possible dates?

Yes. Anytime is possible, except holidays (3-5 de March and 14-24 April) and post June (end of school year). We can contact ICT Competence Centres that may host and may arrange the visit to some schools.

(viii) Contact reference for the initiative

Nonio Programme (DAPP-Ministry of Education)

Ida Brandão

tel: +351 21 394 93 37

fax: +351 21 395 76 10

ida.brandao@dapp.min-edu.pt

¹⁹ A peer review is one of the methods indicated as a way of sharing good practice within the context of the Open Method of Coordination. It will involve a visit by a number of expert colleagues (peers) to document and study the example of good policy practice. It could include meetings with policy makers, meetings with those responsible for the delivery of the policy, and its implementation on the ground, and an opportunity to exchange views with colleagues throughout the visit in order to determine what may be of interest for individual participants. Normally a visit would include 2/3 members of the expert group, an academic expert, and a Commission official.

B. Examples of good pedagogical practice in integrating ICT in education and initial vocational education (you can present examples of ongoing experiences that have been identified as good pedagogical practices by school teachers or by an academic or government authority)

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

School edition newspaper; all students from 7th. Level up to 12th. Level; it occurs during the school year from September to June, in 3 editions. It also involves Journalism Club.

(ii) What are the main intentions in integrating IT in this course or experience?

To develop skills in students, it implies the building of the newspaper, such as photographing, text edition, imaging and html language to online editions.

(iii) How are the students evaluated? With what criteria or indicators?

The students are evaluated from their interference and participation in a qualitative scale. The qualification is therefore analysed in the course team.

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

The pedagogical method is searching and independent work. Teachers organize materials, informations, formal contacts. The students build up the material newspaper.

(v) Student activities: assignments, communications, group work vs individual work

The students are responsible for the different sections of the newspaper: board of directions, editing photo composition, publishing...

(vi) What technology is used? Is there available technical support?

QuarkXpress / Microsoft Office / Computer/ Scanner / Digital Camera.
Yes, we are supported by the Resources Center.

(vii) What are the instructional materials and resources used and how do the students access them?

The students have free access to computers, scanner, digital camera, printer and then photocopy, Internet and other resources.

(viii) Are there other learner services available through ICT?

Yes, Internet research, school library and all means available at Resources Center.

(ix) Are there known pedagogical results with this practice?

Not yet. The project has started September 2002 but the first evaluation is positive. It increases self-confidence, responsibility, sense of society role of news.

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

The Teacher. The criteria is development of different skills. The indicators were shown in ancient activities related with journalism.

(xi) Has this “good practice” been officially recognized, “labelled”, presented in conferences? If so, when and by whom?

Not yet. The actula school newspaper “CUSCO” will apply to the national schools newspapers contest.

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

The practice of school journalism develop the four skills recognized at UNESCO: learning to know, learning to do, learning to live together, learning to be.

(xiii) Could a peer review²⁰ visit be organised? Can you suggest possible dates?

Yes. May or June 2003.

(xiv) Contact reference for the initiative

Ana Maria Fernandes da Silva
Flavio Rebelo
Mail: escabelsalazar@mail.telepac.pt

²⁰ See previous page.

C. Examples of good pedagogical practice in integrating ICT in education and initial vocational education (you can present examples of ongoing experiences that have been identified as good pedagogical practices by school teachers or by an academic or government authority)

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

The Professional and Technological School of SICÓ offers the following courses: (i) Computer Technician/Manager, (ii) Industrial Automation Technician, (iii) Production Management and Planning Technician, (iv) Technological Chemistry Technician, (v) Lab Analyst and Project Designer.

Every course has 3 years duration and is equivalent to the 12th grade and has a European certification of level III.

Training is predominantly practical, in labour context, with a theoretic component.

(ii) What are the main intentions in integrating IT in this course or experience?

The main objective to integrate ICT in the teaching-learning process is to allow every teacher and student to interact and intervene to make learning more motivating for everyone involved.

Nowadays, in our school, ICT is an imperative to create learning dynamics and be used in pedagogical practices. ICT makes easier the access to information and many resources favour autonomy and self-training.

ICT facilitates the role of the teacher, favours classroom dynamics, teamwork, development of different activities/projects by different groups of students, allowing the acquisition of competencies according to different rhythms of learning.

Research approaches and autonomy competences in the development of school activities are also favoured by the use of ICT.

(iii) How are the students evaluated? With what criteria or indicators?

The students are assessed according to the following criteria: knowledge acquisition and application, teamwork, participation in the activities proposed, solidarity and helping the neighbour, autonomy level, critical attitude, capacity to use the resources/machines, motivation and engagement (industriousness), punctuality and attendance.

Every student in every course receives training in/with ICT. This training comprises technical and pedagogical competences regarding the different resources and equipment, such as different types of software, data projector, computer, digital camera, Internet and Intranet.

Many students acquire skills and competencies producing webpages, through which they present their schoolworks.

Evaluation tools used: (i) observation of the work and performance of each student, (ii) individual and team practical work implying respective presentation to the class, (iii) written tests,

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

In our school training and classroom activities involve the participation of both teachers and students. The teacher role is that of guidance integrating the students

teamwork. He defines the rules, usually, negotiated with the students and coordinates the different group activities.

Prior to the execution of the activities, the objectives, contents, selected resources, evaluation criteria and assessment tools are defined and discussed. It is considered the possibility of interdisciplinarity. Afterwards comes the execution of the activity, training and self-learning process. Different methodologies are pursued normally ICT-based. Along the process joint-monitoring takes place and adjustments occur whenever necessary in order to meet the objectives.

(v) Student activities: assignments, communications, group work vs individual work

As referred above, students have an active role in learning. This school has abandoned, long ago, the traditional methods of lecturing. Transmitting knowledge is not exclusive or prioritized in our school context.

Training and school activity go beyond the classroom, it develops research approaches, such as information search through bibliography, Internet, Forum, etc., teamwork, training in labour context (in companies).

Public presentation to schoolfellows, with critical analyses by peers, is part of the evaluation process of the students.

(vi) What technology is used? Is there available technical support?

Technology used has been referred in (iii). The school owns different means of technology required by each course.

It owns a network of 90 computers for 158 students, connected to the Internet. Data projectors, digital photo/video cameras, audio equipment, printers, TV sets, DVD, videoconference equipment and portables are made available by the school.

An Intranet is under way to facilitate students access to school information. The school has lots of software for the general subjects and technological subjects.

The school library makes available vast bibliography, thematic magazines and press and a video corner. Every student is free to use the facilities, equipment and tools. There's a person in charge of the library that supports the easy access of the students.

(vii) What are the instructional materials and resources used and how do the students access them?

For each subject, the teacher must elaborate a dossier/manual according to pedagogical criteria, as support material to the discipline and to support students in self-study. These manuals are distributed to each student in the beginning of the schoolyear. Students have free access to the equipment and is allowed to take it for certain periods of time. Every student has training to use the equipment and tools so to avoid misuse and damage.

(viii) Are there other learner services available through ICT?

The school has a webpage that is regularly updated. It makes available not only general information about the school but also the students projects as a way to disseminate good experiences..

Our students have access to other technologies, through showcases and events promoted by the schoolboard and teachers in collaboration with Universities, Polytechnics, private companies and other institutions.

Among these initiatives there's a week devoted to ICT that takes place every year in March.

National and international study visits to fairs, companies and institutions have given the opportunity to our students to contact with the latest and more advanced technology.

(ix) Are there known pedagogical results with this practice?

The results (that may have been influenced by pedagogical practices) are measured by the rate of success in the conclusion of the courses by our students (diplomas issued), acceptance of these newly professionals in the market (companies that employ them in recognition of their skills) .

Motivation and good feelings towards the school, good relationship among everyone are the evidence that the school organization and practices are adequate and meets the expectations and interests of all.

However, in order to accomplish our goals completely, we still need to reach the very few students that are not successful in their studies and that face some difficulties to adapt to innovation.

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

Pedagogical practices in school promote self-discipline, individual initiative, critical spirit and solidarity, research and need to search for information, autonomy and relationships between teacher-student and student-student.

All these aspects are projected in self-esteem and value of the work developed by the students.

(xi) Has this "good practice" been officially recognized, "labelled", presented in conferences? If so, when and by whom?

The recognition of the high standards of this school performance is visible through the study visits to our school, at national and international level.

Very recently, a delegation presided by the General Director of Education of Guiné-Bissau has visited our school interested in our project, organization and pedagogical practices, taking this model as a possibility to implement in that country.

Another delegation from the Italian Ministry of Education has visited the school as observers of the methodologies and practices adopted by the school, which prove positive to the training of the students and have the acceptance of the community.

Our school has lately been invited to present its educational project in an event organized by the Town Council, where many other schools were present.

We have received positive feed-back from many state institutions and in particular, those under the Ministry of Education that recognize the value of our work and the results obtained.

We have also been certified by the Ministry of Education and a european organization as an innovative (ENIS) school .

Finally, our school has commissioned an external evaluation (to a private co.) that gathered information all along one school year, from schoolboard, teachers, students, school staff, private companies and other local entities, that were most rewarding and praiseworthy to everyone that works in this school. This study is available for consultation.

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

We think that in Portugal and in Europe, these practices and approach to education are the correct ones, responding to the new challenges of training needs.

Consequently, we think we are contributing for the success of our students and we are a seed to promote change, a reason for others to question their traditional modes and rethink their approach towards teaching-learning process.

Our example may or may not be followed, but external actors to the school can evaluate our work and results.

Every year our school participates in several European projects: Socrates/Comenius – school projects and linguistic projects; and Leonardo da Vinci. These projects have allowed to promote the European dimension among teachers and students of our school and raised awareness for the importance of sharing experiences and being acquainted with different ways of life and culture that enriches us all as citizens of a continent more and more competitive and facing big challenges.

These international experiences have given us the opportunity to disseminate our school project to other European peers and has strengthen relationships and exchange of experiences.

(xiii) Could a peer review²¹ visit be organised? Can you suggest possible dates?

We'll welcome any visit to our school, and are most receptive to exchange and open to learn from others.

We are available to any proposal regarding dates.

(xiv) Contact reference for the initiative

Contact person:

Luís José Teixeira da Rocha

Address: Escola Tecnológica e Profissional de Sicó

Rua 5 de Outubro, 54 Apartado 47 3240-312 Avelar

Telef. 236 620 500

Fax: 236 620 509

D. E-mai

²¹ See previous page.

Examples of good pedagogical practice in integrating ICT in education and initial vocational education (you can present examples of ongoing experiences that have been identified as good pedagogical practices by school teachers or by an academic or government authority)

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

The Business School of Lisbon provides E.U. Level III Courses (Technician of Commerce; Technician of Marketing; Sales Promotion Technician and Windowdressing and Visual Merchandising Technician). It has as mission to open new personal and professional horizons, to youth, being provided to them an active participation in an educational project which gives them skills to manage successfully their personal and professional way along life term. Being "The Commerce as Professional Project" the organising subject of this school educational project with the main purpose of giving students the technological, scientific and sociocultural abilities to face the job world in the sector of Commerce and Services. It seems therefore essential the necessity to develop in the students the skills to use the ICT.

The use of ICT in the Business School of Lisbon is made in a transversal way to all disciplines, integrating the technologies in the different subjects.

Education becomes interactive and increase the capacity of the students mainly disciplining themselves searching the information they need in an organised and faster way.

The transversally use of the ICT makes the technologies and the technological ways closer to the students and their natural skills for the development of these abilities, traditionally attributed to the teachers, are easily transferred to the students.

In order to keep the pedagogical staff actualised and to give them knowledge to work with technologies, the School provides them with training in this area.

(ii) What are the main intentions in integrating IT in this course or experience?

- Acquiring new abilities and tools demanded in the future, mainly using ICT, will allow students to face with trust their personal and professional future;
- Developing the creativity of students and teachers, using the potentialities of the internet;
- Developing abilities in information technologies;
- Touch the public for the problematic of information society and relationship society;
- Defining the diverse concepts which involve the problematic of e-commerce;
- Developing analysing skills which allow to evaluate the taken / to take actions in relation to the e-commerce;
- Developing a critical position before the problems and possibilities of action which contribute simultaneously for the organisation, pretending in long terms a more advantageous society for the various business partners;
- Opportune understanding and use of information.

(iii) How are the students evaluated? With what criteria or indicators?

The students are evaluated through different intermediate products, for example, research in the internet, information treatment, market research through the internet, a.s.o., and through final products such as: a final report of all the apprenticeship and the creation of a web page.

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

Concerning the pedagogical methods, the teacher assumes the apprenticeship guidance and assistance role, and the student takes active participation in the construction of his apprenticeship.

The School uses both project and independent work

(v) Student activities: assignments, communications, group work vs individual work

As referred before, the students research and select information from the internet; develop marketing strategies to virtual business; make reports; communicate the results, a.s.o.. The main work is made in class groups but part of the activities are made individually which allow students to regulate their apprenticeship.

(vi) What technology is used? Is there available technical support?

Computers, video-projectors, printers, plotter and digital cameras.

(vii) What are the instructional materials and resources used and how do the students access them?

In their individual apprenticeship guide, the students have investigation forms which help them in all the process; in their classroom they have one computer with internet access, and they can always go to the school resource centre and work in computers with internet access, make research in the available books, cd-roms, a.s.o.

(viii) Are there other learner services available through ICT?

Yes. There are also continuous learning actions for people already working, who come to school to ameliorate their knowledge.

(ix) Are there known pedagogical results with this practice?

Yes. In their third year, students have to develop a final project, and we've been assisting to a major concern with ICT, not only in developing projects in e-commerce, but they also in finding software that allows them to present a better work – they learn by themselves how to use them. At the same time, we can verify that this kind of work allows students to guide their own apprenticeship and favours the development of their self esteem.

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

The Faculdade de Ciências da Universidade de Lisboa – Science University of Lisbon – supervises all the projects developed by this school within ICT, as well as our Pedagogical Director.

(xi) Has this “good practice” been officially recognized, “labelled”, presented in conferences? If so, when and by whom?

As referred before, the Science University of Lisbon supervises all the projects developed by this school within ITC.

At the same time, the students present, in a open session, to all school community, in the Commerce and Services Associations Federation auditorium, before a jury composed by one entrepreneur of the area, one person representing the federation, the Pedagogical Director and one teacher. The best project is awarded with a prize given by the entrepreneur.

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

Yes, it does : being one of the conclusions of the European Council of Lisbon that “New basic abilities which will be given through the learning along life term, must be defined in an European picture: global abilities in information technologies, languages, technological culture, enterprise and social abilities; it must be created an European diploma of basic abilities in information technologies with decentralised procedures of certification, in order to promote the digital literacy in all the Union.”

(xiii) Could a peer review²² visit be organised? Can you suggest possible dates?

Yes. We would prefer you propose a possible date, according to your preferences.

(xiv) Contact reference for the initiative

Dr^a Piedade Pereira – School Pedagogical Director.
Tel: +351 21 8540240
email: piedade.pereira@ecol.pt

²² See previous page.

E. Examples of good pedagogical practice in integrating ICT in education and initial vocational education (you can present examples of ongoing experiences that have been identified as good pedagogical practices by school teachers or by an academic or government authority)

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

The **Web@Classroom** was an experience conducted in 4 primary schools in Europe (UK, Ireland, Spain and Portugal) . The project has a duration of two years. The Web@classroom is supported by the European Commission within a Socrates Minerva/ODL project ; it is an interdisciplinary and international collaborative project

The Web@Classroom aims to understand the innovation processes in an Internet permanently connected classroom, specially the impacts on teachers (pedagogical practice, patterns of ICT use into the curricular subjects) and on pupils (learning outcomes, development of research skills, development of skills to critically appraise web based information and application of this skills to developing knowledge in the subject area). As an action-research project it was also based in collaborative work strategies, between researchers and schoolteachers and pupils to help them to integrate ICT into the curriculum subjects.

(ii) What are the main intentions in integrating IT in this course or experience?

The Web@Classroom aims to study the ICT impacts on teaching and learning processes like the acquisition of skills research, information handling, selection and filtering skills to allow appraise critically web based materials, and other aspects of ICT use on education, by children (age 9-13).

This study intends to contribute for the acceptance of the idea that governments and schools should connect the classroom to the Internet, as the Internet is a new and useful source of information and knowledge and children should learn how to use it as a tool for learning. Internet should be present in the classroom, as are other resources and materials like books, videos, and other sources of information and knowledge, building new educational environments in our schools.

(iii) How are the students evaluated? With what criteria or indicators?

The methodology adopted was action-research based and it included multiple methods and techniques: systematic classroom observation of teachers and pupil work and learning activities; documentary evidence (teachers working sheets, schemes of work, government Curriculum guidance) interviews (with selected pupils; in each school; questionnaires to all pupils and staff at intervals. This methodology implies the construction and testing of data

collection instruments. Data was submitted to a qualitative and quantitative analysis. See the evaluation website designed for this project. Available : <http://leitrim.cs.tcd.ie/>

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

The educational concept that Web@Classroom used was a collaborative learning model considering the action-research approach. This educational perspective supported the work between researchers and teachers as well as the pupils work within a collaborative learning environment in a permanently Internet connected classroom. The participating teachers and pupils from different classrooms all over European countries were invited for collaborative web based curricular projects. This was supported by new pedagogical perspectives in the very new technological environments, which underline the active role of pupils in constructing his own knowledge.

In this relevant and actual educational model, attention was also given to social, affective and emotional aspects as well as the general educational principle of better knowledge of individual and cultural differences better understanding and acceptance of these differences, underlying the European dimension of education.

Another educational concept related with this project was that we should prepare students to be able to use ICT as a tool for autonomous learning, in the future. Our modern societies demand new skills for the new generations and schools have an important role in this mission. Also relevant in this project was the concern about ICT use's in everyday life, and it should mean for schools and educators the basic assumption of Human Values, whatever the students' ICT uses. The issues of ethics, security and others were addressed on this project. All the teachers from the different schools involved in this project and the research teachers from the four universities which were working together, met at Jarandilla de la Vera on the 29th and 30th September 2001.

In this meeting some ideas were given for collaborative projects between students and teachers. It was built a timetable with the different activities in which students and teachers would be involved from October to June and some research issues were discussed.

(v) Student activities: assignments, communications, group work vs individual work

Some innovative activities were developed and had come from this project. For example: Peer-to-Peer Learning within a ICT contexts. An example: the teacher in the Irish school used the technology to encourage students peer review of each other's writing. One student

would write a piece and send it via the wireless network from their laptop to the peer reviewer. The reviewer made suggestions for improvement and returned the document. This process was repeated twice and a final publishable copy resulted. The electronic nature of this process allowed for all three versions to be viewed side-by-side to demonstrate to the students the progression they had made through the process. In addition the reviewers and authors were required to reflect on the activity and these were captured on video. This reflection encourages meta-cognitive strategies among the students.

Other example: in the English School, the pupil's all have different skills. The ethos of the school encourages pupils and teachers alike to share their skills. In a class, the children will often work in pairs or groups and each teach the other students, and sometimes the teacher, new ICT skills they have learned or techniques they have discovered. In particular, some of the children in a year 4 class (pupils aged 8 to 9 years old), discovered that they could transfer files between laptops using the infra red feature. This skill was passed from pupil to pupil (and teacher) so that the whole class have now developed this skill.

Also In Portugal was usual for pupils to teach and share knowledge and skills with one another and some times they have taught the teachers, in particular in technical issues. Through these kinds of initiatives, schools, teachers and students are living their first experiences building and maintaining an educational network based on innovative projects in which they are frequently invited to participate. This kind of opportunity has much value for people because they are learning and living in a very different kind of learning environment. What these teachers and students from different countries felt and how they experienced this first initiative on collaborative based network projects are the stories of this text. "Working in partnership with distant schools, was very enriching, not only for teachers, but also for the pupils, the families and the school". (Teacher, School, PT).

A collaborative educational project demands a lot of work in planning especially by the participating teachers. Within this project the teachers from all schools and from all countries worked together during a face-to-face meeting in Guadajira.

During these three days, teachers had time to get to know each other, to present their schools and students and their communities. After this, they had the opportunity to plan all the work they would do with children in their own school for the entire school year. A plan was one of the results of this meeting. The work was done in each school and the two main tools to be used were the e-mail and the Internet based newsletters and publishing in the project web site.

(vi) What technology is used? Is there available technical support?

Recent advances in computer technology means that mobile computing (laptops) and wireless networking are now a real and exciting possibility for the classroom.

Having wireless laptops for some or all of your students can open new ways of learning and teaching, some of which we have explored in this project.

Mobile Computing – Laptops: Previously computers in the class were restricted to large boxes on benches and this had a great impact on how they were used. For example students would normally be sat in front of a screen, often isolated from their classmates. Using laptops allows the computer, and all of its benefits, to be included in the classroom activities. Students can work in groups, whole class, or individually with the technology, and without the restrictions of place. They can prepare assignments, follow presentations, and demonstrate their work to their peers or the class with a minimum of effort. The technology becomes another learning tool, not a tool to be learnt.

Wireless Technology – Network access without the wires: To get the maximum benefit from computers in education, they need to be on a network. The network allows access to the information resources of the Internet, the ability to store work centrally within the school, and allows students to access shared resources such as CD-ROMs. Previously this access would have to be through a physical connection (a wire) but now using simple wireless technology these resources can be accessed anywhere in the school without cables.

Combining wireless access with laptop computers completes the picture. Students are no longer tied to a single place to benefit from the technology and the benefits now include: -

Flexibility

Anytime, anywhere use of technology

In-class group working with access to resources on the Internet or school network

Technology can be taken home if required

More efficient integration of technology into the learning environment

The school has found that using mobile computers is an advantage because the technology is brought into the classroom. This means that the students are working in their normal work situation which creates fewer distractions and takes less time than moving to another room.

The computers are often seen being carried around whilst the students collect data such as a survey, or measurements such as varying temperature around the school. The students enter the data directly into a spreadsheet and have a graph for analysis by the time they return to the classroom.

The school found that the mobile computers were as robust as the desk top computers. As they do not need wires when used with a wireless network, the Internet can be accessed as a matter of course during a lesson. Students can use the Internet to research a topic when the information is required and send and receive e-mails. Students can participate in projects such as web@classroom where contact was maintained with other schools. The students in the project used e-mail to exchange information about curriculum topics such as Rivers and

Mountains. Files can be stored centrally and documents printed on a printer anywhere in the school.

There was a timetable for the computer use. Consequently all students had the opportunity to use them on a regular basis. Being mobile, the computers could be taken home. This has had repercussions for the community and led to a greater uptake of community courses by the students' families and contributed to considerable bridging of the Digital Divide.

The technology used within the Web@classroom project was easily available in the market. The selection of the equipment was done carefully and schools and teachers have taken into account criteria with the children' health and security, namely the computers' weight, component's quality of the materials, battery functioning, level of radiation and screen quality. Additional norms about using computers were strictly observed by teachers and researchers: security instructions from the computer industry, family helping to carry computers at home, battery charging, cleaning and conservation of computers and accessories; using and sharing printing resources, storing information in he hard discs, classroom management and organization, etc.

Besides portable computers with 15' TFT screens, within the Web@classroom project were used wireless cards, a wireless station (for emitting and receiving radio signals) connected to Internet access point and an antenna for signal amplification. This wireless technology is not dangerous for children and the technology used is similar to domestic wireless telephones.

(vii) What are the instructional materials and resources used and how do the students access them?

All kind of materials was produced in the project, including a collaborative electronic newsletters, a web site with materials, paper based materials, etc.

Efficiency, saving time on production of instructional materials and resources was possible using this kind of technology. Once teachers possessed ICT skills, the production and storage of resources was significantly aided by the technology. Also the electronic submission of teachers' lesson plans every two weeks facilitated sharing and editing curriculum activities between teachers.

(viii) Are there other learner services available through ICT?

e -mail, Internet access, teachers pedagogical and technical support, English lessons for children in Portugal

(ix) Are there known pedagogical results with this practice?

A scientific report was made by the international research team from all Universities involved in the project. The results can be seen especially in the following areas:

Teacher's benefits

Pupil Motivation

Classroom and school organisation and management

Production of instructional materials

Teacher's professional development and collaboration

Pedagogical practices

Innovation for community regeneration: bridging the digital divide.

See more details of the project at <http://www.minerva.uevora.pt/webclassroom/index.htm>

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

The involved Universities and the schools; the national bodies of Education in the UK, Ireland, Spain and Portugal; It was considered an innovative project according the educational perspective, the pedagogical results and pupils learning outcomes as well as for teachers professional development.

(xi) Has this “good practice” been officially recognized, “labelled”, presented in conferences? If so, when and by whom?

This project was presented in several conferences in the UK, Ireland, Portugal and Spain. All the presentations were made by the researchers and teachers involved.

Web@classroom an exploration of emerging learning environments. Conference

Presentation at the Association for Information Technology in Teacher Education Annual Conference 17th of July to 19th of July 2001.

John Threadgold, Sharon MacDonald, Bryn Holmes, Tim Savage, Jose Ramos, & Marilyn Leask. UK, 300 participants

Webbing Evaluations: A Web-based Artefact to Enhance Shared and Collective Knowledge Construction in Evaluation Process

Arnedillo Sanchez & Brendan Tangney, Conference Presentation , ITTE 2002, Trinity College, Dublin) IE, 300 participants

Projecto WEBCLASSROOM: Computadores e Internet sem fios na sala de aula.

Conferência internacional ICTE 2002, Badajoz, Spain, José Luis Ramos, José Luis Carvalho, Blasquez, F., Luengo, R. E Casa, G.L., ES, 300 participants

Considering Education in an emerging information age: social inclusion and the new economy. Sarah Younie & Bridgette Wessels. Paper submitted to Journal of Sociology of Education in July 2002., UK, 300 participants

region\re\generation\ - Laptops as a catalyst for community change. Abstract submitted to CAL03. Sarah. E. Younie, Karen .B. Cameron, Bryn Holmes, Christina Preston, Jose L. Ramos, UK, 300 participants

Seminário: portáteis e redes sem fios e investigação-acção na sala de aula.

Linking Learning with Laptops. A seminar hosted by Mirandanet and the Institute of Education, University of London UK,

Seminário: portáteis e redes sem fios e investigação-acção na sala de aula.

Aplicação da Tecnologia em Experiências de Aprendizagem- EvoluTIC – Escola Superior de Beja -Comunicação sobre Projecto Webclassroom) PT,
Conferência Internacional de Investigação- Educação - Viana do Castelo – Poster sobre metodologia de investigação no projecto Webclassroom , PT, 100 participants

Web@classroom: experiencia de uso de ordenadores portáteis con conexión inalámbrica a Internet en un pequeño colegio rural. Florentino Blázquez Entonado. In press. Paper submetido a Revista Pixel – Bit.

Utilización de ordenadores portáteis con conexión inalámbrica a Internet: Proyecto Web@classroom . in press. Paper submetido a Revista CAMPO ABIERTO"

Guia da Sala de Aula Permanentemente Conectada. Web@classroom newsletters.

Available: <http://www.minerva.uevora.pt/webclassroom/new/produtos.htm>

Webclassroom newsletters . Available:

<http://www.minerva.uevora.pt/webclassroom/new/produtos.htm>

Considering Education in an emerging information age: social inclusion and the new economy. Sarah Younie & Bridgette Wessels. Paper submitted to Journal of Sociology of Education in July 2002.

Webbing Evaluations: A Web-based Artefact to Enhance Shared and Collective Knowledge Construction in Evaluation Process .

Arnedillo Sanchez & Brendan Tangney, Proceeding & Abstracts of ITTE 2002, Trinity College, Dublin, in press.

Proyecto WEBCLASSROOM: Ordenadores e Internet sin cables en el aula. Proceeding & Abstracts de ICTE 2002, Badajoz, Spain. in press.

José Luis Ramos, José Luis Carvalho, Blasquez, F., Luengo, R. E Casa, G.L

Homo Sapiens e Homo Virtualis. Da literacia tradicional à literacia tecnológica. Contributos para um debate no âmbito da formação de professores. José Luís Pires Ramos. Actas do Congresso das Literacias. Universidade de Évora

Projecto Webclassroom : comunicar e navegar sem amarras. Artigo publicado no Boletim BIT-UE da Universidade de Évora. José Luis Ramos

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

The Web@Classroom take account with the European dimension of education as stimulate the teachers and pupils to join in collaborative curricular projects with european teachers and pupils from this and others projects and initiatives. The web based curricular projects allow better knowledge of the different social and cultural patterns within Europe. The project also stimulate participants in using major European resources and institutions based on scientific, educational, cultural, social and political institutions of Europe in a systematic and formative way, planning and using in a regular basis the Internet permanently connected classroom allowing the correct and complete integration of European themes into the curriculum using ICT.

(xiii) Could a peer review visit be organised? Can you suggest possible dates?

Yes, of course. Any dates : just is need to contact the coordinator and the schools in each country.

(xiv) Contact reference for the initiative

José Luís Pires Ramos (Scientific Coordinator)
jlramos@uevora.pt

SWEDEN

Examples of good policy practice in integrating ICT in education and initial vocational education

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus, or other? By whom?

ITiS, the National Action Programme for ICT in Schools, was a government initiative that got unilateral support in the parliament when introduced. During the planning phase of the programme a rather extensive consultation took place. All parties concerned were invited to discuss the proposals before the details of the programme were decided. All municipalities (local authorities) were *offered* the opportunity to participate in the programme. During the implementation of the programme, the dialogue between the Delegation for ICT in schools and local/regional actors was of vital importance and a contributing factor to the positive result.

(ii) Description of the policy: target groups, duration, outcomes

The primary target groups were decision-makers for schools at local level, head-teachers and teachers as well as decision-makers for IT-infrastructure at local level. The programme covered all schools, ie the pre-school class, compulsory school, upper-secondary as well as municipal adult education and folk high schools.

Duration: The programme as a whole was implemented during 1999-2002. The programme for in-service training run all these years while the infrastructure investments took place during 1999-2001.

Outcomes: ITiS was the most extensive national investment in school development so far. Half of all teachers in Sweden have participated in the in-service training. All schools have been involved and all have Internet-connections with bandwidth that makes Internet a tool in the learning situation. All teachers and pupils have e-mail addresses. ITiS was based on a holistic view, nationwide approach, division of responsibility and a personal commitment. ITiS has led to improved communication between pedagogical and technical staff at local level. Furthermore, ITiS has been a pedagogical communication process where teachers acquire new knowledge in interaction with each other.

(iii) Known opinions, reactions, appreciation of those concerned by the policy: teachers, students, administration, parents, other.

A programme of this proportion is naturally evaluated. Two teams of evaluators from two different universities have followed the in-service training programme since 2000. Two interim reports have been presented and a final report is expected by December 2003. The infrastructure programme was evaluated by The Swedish Agency for Administrative Development in 2001.

Besides these formal evaluations there have been constant monitoring by the regional co-ordinators as well as follow-up visits in just about every local authority. The teacher unions have monitored the opinions of their members. The 1200 facilitators have reported on their impressions. As for infrastructure the Infrabas-support group have been in contact with a majority of the municipalities.

The results have been overwhelmingly positive from all levels! There have of course been many problems along the way, but they have been dealt with. One effect of the structure of ITiS is that shortcomings in the organisations are transparent. This applies to all levels, the individual school, the municipality as well as in the cooperation between the state and the municipality and in the Delegation. Often is it only when shortcomings have become apparent that they can be remedied.

(iv) What are the criteria for qualifying this practice as “good”: who qualifies it and why?

The judgement is based on the following criteria;

- Teachers that have participated in the in-service training are satisfied with the outcome.

- The demand from teachers to participate in the in-service training exceeds the supply.
- Decision-makers in the municipalities who generally are very negative to all earmarked funding, have a positive view on ITiS
- Decision-makers in the municipalities are generally very negative to what they perceive as “the state meddling in local business”, however this time they say that they have appreciated the dialogue and the guiding offered by the state.
- Teacher unions as well as the Swedish Agency for Local authorities are asking the government to continue their involvement.
- The goals of the programme have been achieved.

(v) Are there any known pedagogical results obtained with this policy?

The evaluations show that the involvement of the work teams in ITiS has had a highly positive influence on co-operation within the work team. Teachers have used the opportunity to meet on a regular planned basis often once a week for pedagogical discussions. A number of the work teams have no earlier experience from interdisciplinary approaches and working with the same group of pupils. Competence in the work teams varies both as regards working methods and computer skills. Teachers have thus been a resource for each other. The facilitator was regarded as very important for the pedagogical discussions. The facilitators have been particularly appreciated for the interest they have shown in the pedagogical issues, which the work teams have had to deal with. They have involved themselves in the everyday problems of the work teams and contributed to new thinking. A number of teachers stated that a new form of co-operation had been developed and that they could see many benefits from working together in teams. There are also teachers who stated that ITiS has led to the emergence of a common view of pupils and learning. As a result of the interaction between a number of different subjects, teachers have had the opportunity both to create preconditions for achieving a holistic perspective of events and phenomena, and teaching in smaller groups. Many work teams have focused more on pupil centred learning after ITiS than before.

For many work teams, the computer has increasingly become one of a number of natural pedagogical tools. Most of the work teams state they have increased their use of computers, both in teaching and administration, but there are also those who have decreased their use in this area. A more balanced attitude to what ICT can contribute is emerging amongst a number of work teams. Many teachers still have much to learn concerning the use of computers.

(vi) Is there a European dimension to this policy? If any, could you describe it?

For the practical part of the in-service training many teacher teams have chosen to contact a school in another European country for a joint project or for e-mail communication between pupils/students.

(vii) Could a peer review²³ visit be organised? Can you suggest possible dates?

(viii) Contact reference for the initiative

A peer review visit could naturally be organised. Spring 2003 would be preferable. Contact reference is Ms Kina Nordlund, phone: +46 8 405 2539
e-mail: kina.

²³ A peer review is one of the methods indicated as a way of sharing good practice within the context of the Open Method of Coordination. It will involve a visit by a number of expert colleagues (peers) to document and study the example of good policy practice. It could include meetings with policy makers, meetings with those responsible for the delivery of the policy, and its implementation on the ground, and an opportunity to exchange views with colleagues throughout the visit in order to determine what may be of interest for individual participants. Normally a visit would include 2/3 members of the expert group, an academic expert, and a Commission official.

A. Examples of good policy practice in integrating ICT in education and initial vocational education

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus, or other? By whom?

The IT strategy, ratified by the City Council, is the basis for all IT activities within the public sector of the City of Malmö including education.

The **Pedagogical Centre** is commissioned by the Local Education Authority of Malmö to provide pedagogical development and services for all the schools in Malmö.

Our main task is the development of ICT and media for pedagogical purposes.

(ii) Description of the policy: target groups, duration, outcomes

The approximately 80 schools of Malmö include all levels, from primary to upper secondary, vocational and adult education.

The **Pedagogical centre** is a permanent institution, but its concept is continuously adapted to the present as well as the future needs in education.

We provide a virtual learning space with conferences, e-mail, chat fora, distance learning tools, evaluation tools, platforms for international collaboration, web servers etc. for 49 000 teachers and students. The main focus, however, is on the implementation of the use of these platforms and tools in education on all levels: by offering in-service training, by supporting school libraries, by building networks of teachers, school librarians and headmasters, by initiating and supporting development projects etc.

(iii) Known opinions, reactions, appreciation of those concerned by the policy: teachers, students, administration, parents, other.

The networks of teachers, school librarians and headmasters provide us with input as well as feed-back continuously.

There is quite an interest in our concept. We have several visits from all over Sweden, but also from other Nordics countries, The Netherlands, Estonia, Scotland etc.

(iv) What are the criteria for qualifying this practice as “good”: who qualifies it and why?

To be able to meet the needs of today from any type of school or level, but also to be prepared for the needs of tomorrow. To plan and implement solutions that are satisfactory pedagogically as well as financially.

Our customers are our judges. Their response contributes to the improvement of our concept.

(v) Are there any known pedagogical results obtained with this policy?

Yes.

(vi) Is there a European dimension to this policy? If any, could you describe it?

The City of Malmö is a multicultural society with multicultural schools. About 25 % of the population have foreign roots. There is a great interest in participating in international projects and collaboration. We support schools in seeking partners as well as in planning and running projects and offer free platforms for collaboration.

We take active part in **European Schools Project** and we are partners in two Comenius 3 networks: **ECOLE** (European COllaborative LEarning Network) and **MIR** (Migration and Intercultural Relations: Challenge for European Schools today).

(vii) Could a peer review²⁴ visit be organised? Can you suggest possible dates?

We could organize a peer review visit at any time as long as time for planning is allowed.

(viii) Contact reference for the initiative

Pedagogical centre

Dep. Director Ulf Åkerberg

Hårds väg 5

213 67 Malmö

Sweden

Phone: +46 40 343435

Fax: +46 40 221726

E-mail: ulf.akerberg@malmo.se

B. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

B.1. BERG Gymnasiet

(I) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

The courses involved in the experience we have made are many different. We work with a lot of projects where we integrate different subjects mainly theoretical subjects with practical ICT subjects. Here i will describe two different projects. The first is a website with authors made in cooperation between a course in webdesign and a course in literature history. The second example is a cooperation between Natural science and Multimedia where the students made an interactive presentation regarding natural science topics. The level is the Swedish gymnasium level (upper secondary), ages 16-19. The projects lasted about 1 month each. The context in which these projects have been made is that our school and principal encourage these integrated forms of work. Since all students have a computer of their own it is really easy to work in this form and use the computer as a learning creative tool.

(II) What are the main intentions in integrating IT in this course or experience?

The main reason for integrating IT in these courses are basically to get the students to learn two subjects at the same time and be able to get a bigger perspective. Of course it also generates a context which makes it easier for the students to acquire knowledge. Something we try to do is that we always let the theoretical subject be the main issue and the IT just a tool. We have found out that the students easily learn IT and find it duller with theoretical subjects. This form of work really makes the students work harder and they become more interested.

(III) How are the students evaluated? With what criteria or indicators?

The students deliver a product, it was in these cases a website and a interactive multimedia production. In some other cases we have a test to make sure that the students have learned what they are supposed to.

(IV) Student activities: assignments, communications, group work vs individual work

The basic pedagogical method is that the teacher works as a mentor and the students work in different groups with a task which they are supposed to deliver on a specified date. This works really well since it encourages the students to take responsibility over their own education. It is important that the teachers have a continuous discussion and debate with the students because this is an important learning tool.

(V) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

The students gather their own material based on the task and then make a critical analysis of the material so that it is true and based on facts and not on personal opinions. They also discuss between themselves within the group and make a plan how to organize the work. The students work as a professional web company with an art director, copywriter, programmer and so on. This makes the work more adjusted to the real life situation.

(VI) What technology is used? Is there available technical support?

The technology we use most of the time is computers, digital cameras, digital video cameras, scanner, video editing equipment, software for the different tasks such as Photoshop, Director, Dreamweaver, Frontpage and of course a word editor. Of course we have a technical support integrated with the teaching situation since it is meant that the students should know the technology as a part of their education. We also use video conference technology and connect to other places in Sweden and use knowledge from different places. We have a partnerschool in Stockholm, Sweden which we collaborate a lot with using video conference technology. Using these teachers in Stockholm at Rönninge Gymnasium can educate our students in programs and technologies they use. This cooperation is a fantastic example of how you can use IT as a mean to deliver more choices for the students and increases the development of the staff and administration on each school.

(VII) What are the instructional materials and resources used and how do the students access them?

The instructions are usually given on paper and some resources also. We try to combine delivering information to students and letting them search for their own information. Often we use a forum where students can discuss, publish and receive information. This forum is placed on a First Class server which both students and teachers can access.

(VIII) Are there other learner services available through ICT?

We have a lot of learning services through ICT. We have Video Conference systems where we can send and receive really good video quality from around the world. This system can also send live screenshots which is really useful when you show a new program. We also have access to a web based tool for distance learning which is called LUVIT (e-learning) made by Lunds University. There we publish whole courses which we can use to educate adults or students in other places. Our students then can sit at home and still be able to access instructions and materials. Both these technologies are used interacting with Rönninge Gymnasium in Stockholm and now also a school in India. We also hope to be able to use video conference tools, E-learning tools to communicate with other European countries.

(IX) Are there known pedagogical results with this practice?

The known results from integrating ICT in education is very good since the students get a bigger perspective and they find it more interesting when you combine a practical moment with a theoretical moment. If we look at courses, such as Social Science and Natural Science the results from especially work orientated students has increased using ICT as a pedagogical moment.

(X) Who characterises this practice as good and why? What are the main criteria and indicators?

Both students and teachers recognize this model as a very good way of teaching. For the teachers it increases the contact with the students as it is easier to have a individualized teaching perspective where all students can be seen. Of course this is something positive in the students perspective too. The criteria for a good practice is that the students find the education interesting and that they reach the goals of the course. The indicators are of course the grades in the subjects and how the students find the education. Every semester we have evaluations and some questions directly concern integrated work in school.

- (XI) **Has this “good practice” been officially recognized, “labelled”, presented in conferences? If so, when and by whom?**

The practice has been officially recognized by The National Board of Education and Compaq among many interested. Our idea to always let the theoretical subject be in focus and our exact planning with the students makes it a model which works, which of course draws attention. Our cooperation with another school has also arisen a lot of attention from many parts of society and we got a permit to grade students from a different school as the first school in Sweden.

- (XII) **Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?**

We believe that if you work as we do, integrating courses and work with other schools using e-learning tools and video-conference it could be a wonderful way to teach students something new and interesting. Of course it also generates contacts and ideas between teachers and principals which certainly will lead to new ideas.

- (XIII) **Could a peer review²⁵ visit be organised? Can you suggest possible dates?**

A visit to our school is easily arranged. Contact us for a date and time. We are flexible.

- (XIV) **Contact reference for the initiative**

Olof Vahlström
Bergs Gymnasium
Box 73
S-840 40 Svenstavik
Sweden
<http://www.gymnasiet.berg.se>
E-mail: olof.vahlstrom@berg.se

B. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

B.2. A district project, in cooperation with the Museum of Jämtland and Mid Sweden University

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

A local history/native district project in cooperation with schools in seven different municipalities in this region. Level of teaching is from the 3rd grade to the 9th grade in nine-year compulsory school and in the upper secondary school. The project is also a cooperation with the Museum of Jämtland and Mid Sweden University. The project started in 1998 and has continued and developed since then.

(ii) What are the main intentions in integrating IT in this course or experience?

The student can get information as well as transfer his own project to the Memory bank in the Museum of Jämtland. In this way the young participate in building up the Memory bank and their works can be shared by schools and the public. The student can also use the database of the project.

(iii) How are the students evaluated? With what criteria or indicators?

The students are evaluated by the criteria of the syllabus. They get marks depending on the result of their project.

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

The basic pedagogical method is:

- Work with problem oriented learning methods
- Encourage young people's identity
- The teacher is a tutor and the student is making a research by searching, critically examining, evaluating, structuring, processing and presenting information in different ways

(v) Student activities: assignments, communications, group work vs individual work

The student chooses a topic, writes questions and looks for sources in order to carry on research work. The sources may be interviews, photos, objects or buildings which can be found locally, in the library, in the Memory bank and so on. The work is documented according to rules set by the Memory bank. The students decide if they want to work individually, in pairs or in group. It depends on their choice of topic.

(vi) What technology is used? Is there available technical support?

Computer, internet, digital-camera and video-camera.
Yes, technical support is available.

(vii) What are the instructional materials and resources used and how do the students access them?

The basic pedagogical method is non formal education. Instructional materials are in the local environment of the student instead of the textbooks and in the Memorybank in the Museum of Jämtland. The students have to look for the sources on their own and also visit archives, museums and other places in the society outside the school.

(viii) Are there other learner services available through ICT?

Yes, communications between teachers, between students, between students and teachers and between students/ teachers and the Memory bank. It's very important to keep in contact in a waste region as Jämtland. It's difficult to have a network and go for a meeting when it's about 500 km to go by car. With ICT it's possible to get in touch through a network.

(ix) Are there known pedagogical results with this practice?

Several students do better results than in formal education. The connection to their neighbourhood, relatives etc. and the fact that they present their work in public areas motivate students and increase the responsibility.

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

The students and the teachers characterise this practice as good because the students are very well motivated. Several students do better results than in formal education. They get much more responsible for their studies and the topic gets much more interesting.

²⁵ See previous page.

You can work with individual teaching in a very good way. You get a holistic sight of the student; you can help every student to find his best way of learning. As a teacher you will find out, that you also are learning a lot from your students.

(xi) Has this “good practice” been officially recognized, “labelled”, presented in conferences? If so, when and by whom?

It has been recognized in small conferences in Jämtland during 1999-2002. They have been presented by Ann-Charlotte Ernehed, The Museum of Jämtlands län.

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

I think this practice can develop a specific European dimension. To encourage young people's identity is very important when so many are missing their roots. You have to know about yourself for understanding other people and other cultures. That's a big problem today when lots of people are forced to move and live in a new country. To get peace in future the young people need to understand each other.

This practice is also interesting for educational actors in any European country. We have quite similar problems to get students motivated in their own learning all over Europe.

(xiii) Could a peer review²⁶ visit be organised? Can you suggest possible dates?

It is possible to visit The Memory bank daily during the week. The schools are about 50-250 kilometres from the Museum but it's possible to arrange a visit when I know what you want to see.

(xiv) Contact reference for the initiative

Ann-Charlotte Ernehed Tel: +46 (0)63- 15 01 75, 070 –250 86 13.
Jämtlands läns museum
Box 709, 831 28 Östersund ; ann-charlotte.ernehed@online.jamtland.se

²⁶ See previous page.

B. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

B3. An ART PROGRAMME

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

We have a yearly work at the Art programme representing both Art and Form and Music. We are using ICT as a tool for teaching and learning. to continue and develop new ways of using ICT in our daily work in school. We have decided to include our model in the regular schoolwork.

Our project is a cooperation between different subjects all teachers provide. So Arts and Form, Photo, Music, Swedish, Civics, History, Religion and English are part of the project and in their work our pupils will perform these subjects.

(ii) What are the main intentions in integrating IT in this course or experience?

Several teachers, students and courses are working together to get a wholeover picture and to increase the competence of eachother.

The main objective for our pupils is to create a website about...a new theme for each year. By means of integrating a number of courses, use learning by discovery methods of working where the same question is examined from a number of different perspectives. Use a working approach where student groups take part in the planning and implementation of the project.

(iii) How are the students evaluated? With what criteria or indicators?

The students are evaluated of how well the have fulfilled the objectives (fo exemple): Represent thoughts and feelings around the theme With different means of aesthetic expression.

Based on experiences and interest areas, use IT as an instrument to obtain and analyse information and thereby create new , relevant knowlege.

By means of integrating a number of courses, use learning by discovery methods of working where the same question is examined from a number of different perspectives.

Use a working approach where student groups actively take part in the planning and implementation of the project.

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

During the work they will learn how to use different computer-programmes such as Frontpage – for homepage creation, PhotoShop – for pictures and Q-base for music. They will also learn about laws, regulations and also the ethics for publishing homepages on the Internet.

The project is scheduled twice a week from October to March. The students' work examples will be published on the web from the very beginning. An important part of the work is to continuously keep a log-book. The students' websites will contain their own illustrations, texts and sound.

(v) Student activities: assignments, communications, group work vs individual work

After the theme was introduced, most of the responsibility for planning and carrying out the work rest with the pupils. The Pupils are the driving force in the project with all the discussions and compromises that this involve. The role of the teachers is mainly to support and stimulate the work of the pupils.

(vi) What technology is used? Is there available technical support?

Computers with different programmes as FrontPage, Photoshop, Cubase... Scanners, digital cameras, microphones.

The teachers take courses in different data programmes *and learn from eachother.*

(vii) What are the instructional materials and resources used and how do the students access them?

We have created a "quick guide" showing how the programme *Front Page* could be used to make web-productions. Some of the pupils are hostile to the idea of working with computers and an important part of the work is to try and overcome this initial resistance.

(viii) Are there other learner services available through ICT?

Usually it is chaotic in the beginning. We have to force them to focus on the essentials and be realistic. They are supposed to finish their work at the time of deadline.

(ix) Are there known pedagogical results with this practice?

The evaluation was predominantly positiv.
They have learnt to cooperate.
They have learnt to finish their work in time.
They have got in contact with students working with similar themes from other countries during e-mail.
They are not afraid of computers.

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

Our work was named "Best ITiS work team 2000" of the delegation for ICT in Schools.
The evaluation of the students.
Support from the school management.

(xi) Has this "good practice" been officially recognized, "labelled", presented in conferences? If so, when and by whom?

Our work was named "Best ITiS work team 2000" of the delegation for ICT in Schools.
The teachers have present it in conferences of different kinds locally and nationally and even in New York.
Some of our students have present it in a few conferences and as informations to new students.

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

The students get contacts with other students. Internet is an easy way to get in contact with others.

(xiii) Could a peer review²⁷ visit be organised? Can you suggest possible dates?

You can find us:

<http://www.ullvi.koping.se/>
<http://www.ullvi.koping.se/Program/es/index.htm>

(xiv) Contact reference for the initiative

Gunnel Rådås
gunnel.radas@edu.koping.se
Therese Ternvall
therese.ternvall@edu.koping.se

²⁷ See previous page.

TURKEY

A. Examples of good policy practice in integrating ICT in education and initial vocational education

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus, or other? By whom?

The policy is based on the Vocational Training Law nr. 3308 adopted by the Ministry of National Education.

(ii) Description of the policy: target groups, duration, outcomes

Target groups : Vocational high school students

Duration : 1-2 years

Outcomes : Students get acquainted with knowledge and technology used in working life through practice. As a result of this they can easily adapt themselves to working life and acquire occupational competence.

(iii) Known opinions, reactions, appreciation of those concerned by the policy: teachers, students, administration, parents, other.

In general, there are positive opinion among relevant parties and such students are employed upon graduation.

(iv) What are the criteria for qualifying this practice as “good”: who qualifies it and why?

In terms of Vocational Training at Enterprises under Vocational Training Law nr. 3308 enacted in 1986, it is observed that co-operation between schools and enterprises have been established and thus training programs have been amended due to the technological developments in working life. Besides, innovations of working life have been transferred to schools by teachers and students.

(v) Are there any known pedagogical results obtained with this policy?

Teachers working at schools and making cooperation with enterprises, renew themselves with regard to their professions and help the schools to renew themselves in line with technological developments.

(vi) Is there a European dimension to this policy? If any, could you describe it?

This policy bears strong resemblance with the EU member countries, in particular with the German Dual System.

(vii) Could a peer review²⁸ visit be organised? Can you suggest possible dates?
Yes. Probably in June.

(viii) Contact reference for the initiative

Milli Eğitim Bakanlığı
Mesleki Eğitim Araştırma ve Geliştirme Dairesi Başkanlığı
G.M.K. Bulvarı No: 109
Maltepe/ANKARA/TURKEY
Tel: +90 312 2310289
Fax: + 90 312 2315543

²⁸ A peer review is one of the methods indicated as a way of sharing good practice within the context of the Open Method of Coordination. It will involve a visit by a number of expert colleagues (peers) to document and study the example of good policy practice. It could include meetings with policy makers, meetings with those responsible for the delivery of the policy, and its implementation on the ground, and an opportunity to exchange views with colleagues throughout the visit in order to determine what may be of interest for individual participants. Normally a visit would include 2/3 members of the expert group, an academic expert, and a Commission official.

B. Examples of good policy pedagogical practice in integrating ICT in education and initial vocational education

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

World Links began in mid-1997 as an initiative of Mr. James D. Wolfensohn, President of the World Bank, to help bring the developing world into the information age through its future leaders — students — and to build cultural awareness among them in the face of an ever more global economy and society. Since then, the program has expanded to over 20 developing countries (Brazil, Chile, Colombia, Costa Rica, El Salvador, Paraguay, Peru, Botswana, Burkina Faso, the Gambia, Senegal, Ghana, Mauritania, Mozambique, South Africa, Uganda, Zimbabwe, Turkey, West Bank/Gaza, India, the Philippines). Currently, approximately 200,000 students and teachers in these countries are collaborating over the Internet with partners in 22 industrialized countries on projects in all disciplines.

(ii) What are the main intentions in integrating IT in this course or experience?

World Links provides a set of educational technology-related services, specifically geared towards Ministries of Education, non-governmental organizations and international development agencies working in developing countries. These services range from basic school connectivity solutions, to teacher professional development, and training programs for both policy-makers and local communities interested in launching educational technology initiatives.

(iii) How are the students evaluated? With what criteria or indicators?

World Links has developed a monitoring and evaluation system which tracks input, process and output indicators that measure the implementation and impact of educational technology programs.

The monitoring component includes quarterly reporting templates which focus on numbers of schools, teachers and students reached relative to projected targets, in addition to financial management.

The evaluation component comprises quantitative and qualitative instruments (in four languages) that provide formative and summative impact assessment. These instruments include:

- teacher surveys
- student examinations
- classroom observation guidelines
- case study methodologies
- gender-differentiated analysis and
- tracer studies (tracking graduates after the program)

In particular, World Links focuses on four key program outcomes which together form global knowledge-economy skills:

- ability to work students' information reasoning skills
- students' job-related technological skills
- students' effectively across cultures and languages;and

- instructors' pedagogical strategies using technology.

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

World Links' face-to-face teacher professional development materials are comprised of five 40-hour-modules which combine pedagogical instruction in the use of educational technology with practical hands-on skills development and teacher-teacher collaboration. The training materials are created in flexible modular formats in five languages (English, French, Spanish, Portuguese and Turkish) that can be adapted to specific country needs. They have been developed and revised over the past four years, incorporating both World Links' experience working with over six hundred schools in more than twenty developing countries and local professional development expertise. The effectiveness of these professional development materials has been proven by external evaluation conducted by SRI International (formerly Stanford Research Institute), which included quantitative and qualitative assessment of both students and teachers educational performance.

In face-to-face workshops, instructors and youth are exposed to the vast quantity of educational resources and exchanges on the Internet, and to the power of "student-to-student" collaboration. Teachers learn how to fully integrate the use of technology into their daily lesson plans, including how to create new educational content on the Internet which is linked to the curriculum. The end results are Internet-enriched classes and collaborative Internet-based projects, facilitated by instructors but implemented by students themselves. This is really the key "value-added" of World Links. The structure of the World Links education and training component is four-fold: (i) educational and training materials, including print, CD-ROMs, web sites and multimedia distance learning methodologies; (ii) face-to-face training of trainers workshops; (iii) on-going local technical and pedagogical support; and (iv) on-line support.

(v) Student activities: assignments, communications, group work, individual work?

The main aim of the World Links Project is to meet the teachers and students from the different countries on the internet and develop common learning methods, to materialize the student oriented learning activities based on collaboration and project based. This project which is run in the frame of World Connections Program for Development is a pedagogic innovation program which uses information and communication technology to develop education and learning operations. Students and teachers who participate in the project practices, pass over the classroom walls and become a member of the global class of the internet so widen their point of view. In common learning activities, different cultures' point of views are benefited, project based learning activities develop the student's use of the information obtained from different areas all together. Applications directed to the project drive students towards research and supply the students to take part in the information produce group. With the help of this program, students and teachers has been thought to learn based on project, learn in collaboration by using internet and www and materialize the methods of internet projects in associate with the other schools.

(vi) What technology is used? Is there available technical support?

Our intermediate level schools which their infrastructures are enough to become a project school can actively participate the World Links Project. For technical infrastructure there should be computer class at the school to run the pedagogic studies, should be able to share the prepared projects with the other schools, and should have an internet

connection to be able to publish them on the internet.

(vii) What are instructional materials and resources used and how do the students access them?

Project students use books, CDs and internet resources. Students obtain this technological materials at computer rooms in their schools and internet cafes.

(viii) Are there other learner services available through ICT?

There are no other learner services.

(ix) Are there known pedagogical results with this practice?

It has been observed that this program improves the participating students' learning capacity and educational skills. Teachers accept project has a positive effect on pupils' learning process. Due to the intensive curriculum teachers face the issue of limited time to deal with this activity. Teachers and students involved this program develops their computer abilities.

(x) Who characterizes this practice as good and why? What are the main criteria and indicators?

The administrators of Turkish Ministry of Education and the education experts who are responsible of evaluating and monitoring this project. The main criteria is the projects developed through this program on internet.

(xi) Has this "good practice" been officially recognized, "labeled", presented in conferences? If so, when and by whom?

Yes. It has been presented in different times at many educational conferences by coordinator teachers and the directors related the project.

(xii) Does this practice develop and specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

No.

(xiii) Could a peer review visit be organized? Can you suggest possible dates?

Yes. It can be organized at anytime.

(xiv) Contact reference for the initiative

Milli Eğitim Bakanlığı
Eğitim Teknolojileri Genel Müdürlüğü
Teknikokullar 06500
ANKARA/TURKEY
Feridun Keskinliç (Section Director; feridun@meb.gov.tr)
Jale Metin jamet@meb.gov.tr
Kürşat Yayla kyayla@meb.gov.tr
Deniz Güler dquler@meb.gov.tr
Derya Aydın daydin@meb.gov.tr

FRANCE

A. Examples of good policy practice in integrating ICT in education and initial vocational education

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus, or other? By whom?

Consultation of all possible people involved at Higher Education level in ICT for education and research and in ODL; on the ground but also at the highest level.

(ii) Description of the policy: target groups, duration, outcomes

Name of the project (national): “Campus numériques”.

Higher Education: 90% of universities, all teacher training centres, 40 schools of engineers.

An offer to tender to identify and subsidise nationwide consortia, in order to conceive, develop and deliver, both on line and on site, a relevant innovative ICT-based blended learning provision, suitable for initial, continuing, life-long learners.

Started in 2000 – still running in 2003.

Outcomes: 64 HE consortia, with partners outside HE (industry, associations, agencies, etc.), expected to prepare from 2003-4 onward for 150 different grades, certificates and diploma via the networks.

(iii) Known opinions, reactions, appreciation of those concerned by the policy: teachers, students, administration, parents, other.

Immediate support from teaching and research staff, technicians and Heads of establishments. A group evaluated far over 2000 members of staff.

Growing involvement of participants, in numbers and Intensity, as project develops: average of 6 members of staff involved in 2000; over 20 in 2002, per project.

Some concern expressed by central administrative bodies (accountants and controllers!) in charge of the daily management of universities: not used to cross-universities initiatives.

Students not yet relevant or asked.

(iv) What are the criteria for qualifying this practice as “good”: who qualifies it and why?

The mixed “sociology” of the participants in the project: the “endangered specie” of the original ICT pioneers, the scientific “gurus” in each domain, and the heads of institutions cautiously awakening to the awareness of the ICT future to be prepared...

Smooth and effective complementarities between the teams at work and the piloting group at the ministry of education.

Good and confident rates of exchanges between the consortia to capitalise on the experience of each project, etc.

(v) Are there any known pedagogical results obtained with this policy?

Not really but there are many for sure.

(vi) Is there a European dimension to this policy? If any, could you describe it?

There must be one.

10 EU-universities at least are part of these consortia.

The ECTS has been used as basis to calibrate the learning units produced and delivered.

(vii) Could a peer review²⁹ visit be organised? Can you suggest possible dates?

a visit is more than welcome and would be very much appreciated, though difficult to organise considering the decentralised structure of the initiative.

Any time

(viii) Contact reference for the initiative

B. PLATEL

Project Manager for ICT in Higher Education

French Ministry of Youth, Education and Research

101 rue de Grenelle

Room 302

75357 PARIS 07 SP

²⁹ A peer review is one of the methods indicated as a way of sharing good practice within the context of the Open Method of Coordination. It will involve a visit by a number of expert colleagues (peers) to document and study the example of good policy practice. It could include meetings with policy makers, meetings with those responsible for the delivery of the policy, and its implementation on the ground, and an opportunity to exchange views with colleagues throughout the visit in order to determine what may be of interest for individual participants. Normally a visit would include 2/3 members of the expert group, an academic expert, and a Commission official.

B 1. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

Espace Numérique des Savoirs (ENS) : Projet de mars 2003 à juin 2004 s'adressant à un panel de 1500 établissements test comprenant des écoles, collèges, lycées, Centre régionaux de documentation pédagogique et instituts universitaires de formation des maîtres.

(ii) What are the main intentions in integrating IT in this course or experience?

L'objectif est la mise à disposition gratuite de ressources numériques libres de droit pour les enseignants et les élèves. Les utilisateurs (élèves, étudiants, enseignants) pourront puiser un extrait littéraire, une carte géographique, une reproduction d'œuvre d'art, une image médicale, un article de journal, une séquence de film, un enregistrement musical et l'inclure, en toute légalité, dans un cours, un exposé, une présentation pédagogique...

Il s'agit, dès cette phase de test de l'utilisation :

- de médias : un site spécifique de l'AFP (Agence France Presse) et les sites de journaux de la presse quotidienne nationale et régionale avec, le cas échéant, un crédit d'archives téléchargeables ;
- de dictionnaires et d'encyclopédies : « Le Robert », « Le Robert junior », l'encyclopédie « Tout l'univers », l'encyclopédie « Hachette multimédia pro », « L'Encyclopédie Universalis », produits tous reconnus d'intérêt pédagogique (RIP©) par la commission multimédia du ministère ;
- d'archives audiovisuelles numérisées, sous forme de clips assez courts pour autoriser le téléchargement, extraits des fonds de l'INA avec en fil conducteur, des repères chronologiques de l'histoire de France du XXème ;
- de données économiques et statistiques de l'INSEE ;
- de ressources musées dont le site Louvre.edu ;
- d'une centaine d'images satellites, distribuées par Spot Image
- d'un corpus de textes de la littérature française, avec le site « Basile », réalisé par le CNED et les éditions Champion
- d'animations scientifiques, en mathématique, sciences-physiques et sciences de la vie et de la Terre, réalisées avec la technologie flash, modulaires, brèves et interactives pour illustrer des notions de programme.

Ces premiers contenus viendront s'enrichir peu à peu d'autres ressources complémentaires et notamment d'un service de vidéo à la demande développé conjointement par le CNDP et France 5.

(iii) How are the students evaluated? With what criteria or indicators?

L'évaluation sera faite sous un double aspect :

Quantitative par le nombre de ressources utilisées et la fréquence

Qualitative par enquête menées auprès des équipes pédagogiques

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

Il s'agit de la mise à disposition de ressources brutes pas forcément didactisées et sans scénario préalable d'utilisation. L'objectif est la facilitation du travail sur des objets numériques en soutien à l'acte d'enseigner.

(v) Student activities: assignments, communications, group work vs individual work exposés, travaux personnels et collectifs

(vi) What technology is used? Is there available technical support?

L'ENS est un portail à accès filtré et sécurisé pré-installé dans les établissements du panel. Une assistance est prévue à la mise en place.

(vii) What are the instructional materials and resources used and how do the students access them?

///

(viii) Are there other learner services available through ICT?

////

(ix) Are there known pedagogical results with this practice?

Le service va ouvrir en mars 2003, il n'y a donc pas d'historique pédagogique.

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

Le ministère de la jeunesse, de l'éducation nationale et de la recherche, dans sa mission de service public, vise à la mise à disposition d'un socle minimum de ressources communes aux établissements d'enseignement.

Trois orientations seront particulièrement importantes pour une pleine réussite de l'espace numérique des savoirs :

- **le contexte légal et la propriété intellectuelle** : l'Espace numérique des savoirs constitue un projet remarquable car il intègre en amont les négociations et le rachat des droits des œuvres. Ce travail sera poursuivi et étendu avec les ayants-droits ;

- **le contexte économique et les partenariats publics/privés** : l'ensemble des éditeurs publics et privés devront s'approprier cet espace et en faire ensemble un canal privilégié pour la diffusion de la connaissance ;

- **le contexte technologique et la facilité d'utilisation** : l'espace numérique des savoirs devra être exemplaire en terme de facilité d'usage et d'accès aux informations. L'ergonomie, le service aux utilisateurs seront au cœur de la conception des contenus mis à disposition.

(xi) Has this "good practice" been officially recognized, "labelled", presented in conferences? If so, when and by whom?

Le lancement officiel a été fait par le ministre délégué à l'enseignement scolaire le 3 février dernier. Des présentations ont été faites au niveau académique et au niveau européen.

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

Oui bien sûr. Par exemple les données du patrimoine telles celles du Louvre constituent un intérêt dans toute l'Europe.

(xiii) Could a peer review³⁰ visit be organised? Can you suggest possible dates?

Oui Mai 2003

(xiv) Contact reference for the initiative

Odile de Chalendar + 33 1 55 55 80 06 Odile.de-chalendar@education.gouv.fr

Thierry Bertrand + 33 1 55 55 80 13 thierry.bertrand@education.gouv.fr

³⁰ See previous page.

B 2. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

Le programme Etablissement d'Enseignement Virtuel est la conséquence du programme de recherche européen IN-TELE (Internet Teaching and Learning). Suite à In-TELE, dès 1998, qui étudiait les usages pédagogiques dans les établissements scolaires, une première application informatique ESV Cartable Numérique a été développée pour permettre à l'ensemble de la communauté éducative de fonctionner avec les préoccupations de chacun. Préparer et diffuser des cours, des notes, des absences, etc... Toutes les fonctionnalités d'un établissement scolaire.

Le projet ARIANE Dijon utilise les solutions développées par ESV Cartable numérique du collège à l'université en y ajoutant d'autres briques (Bureau Nomade par exemple). Toutes la communauté éducative utilise au quotidien l'application, de l'administration en passant par les enseignants, les élèves et évidemment les parents.

L'application est en exploitation depuis 2000 dans un établissement scolaire en Alsace qui constitue le laboratoire de recherches de l'Université Louis Pasteur pour les usages. Il est en fonction depuis 2002 dans le cadre du programme ARIANE Dijon.

(ii) What are the main intentions in integrating IT in this course or experience?

Les recherches conduites par le laboratoire des sciences de l'Education de l'ULP ont montré que l'introduction des nouvelles technologies dans les dispositifs d'enseignement n'avait de sens que parce qu'ils étaient en phase avec les préoccupations des enseignants et des élèves. L'application ESV est donc un environnement numérique pédagogique qui est en phase avec les pratiques pédagogiques et l'organisation administrative d'un établissement. Cependant, sont inclus dans l'application, d'autres approches qui permettent le travail de groupe avec un concept original qui est celui de la métaphore spatiale pour que n'importe qui puisse très simplement utiliser ces solutions sans être un expert informatique.

(iii) How are the students evaluated? With what criteria or indicators?

A partir des usages, un accompagnement de l'opération met en perspective les actions des acteurs des établissements et les conséquences en terme de comportements et de résultats d'ensemble.

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

L'application utilisée dans le programme ARIANE Dijon, permet de poser l'utilisation des NTIC au centre du dispositif d'enseignement. D'une part cela signifie qu'ils utilisent les possibilités offertes pour l'organisation, la gestion, la pédagogie de type classique. D'autre part, en développant les aspects de pédagogie coopérative. Enfin, en engageant des projets de collaborations avec d'autres établissements.

(v) Student activities: assignments, communications, group work vs individual work

Toutes les modalités pédagogiques sont utilisées. Qu'il s'agisse du travail de groupe, individuel, collectif, de correspondance...

(vi) What technology is used? Is there available technical support?

Les solutions ont été développées par l'Université Louis Pasteur de Strasbourg. Il s'agit de web services, qui permettent en fonction de profils, de permettre l'accès à des fonctionnalités de tous les types. Qu'il s'agisse de l'utilisation de logiciels sur des technologies client-fin, et plus classiquement sur des technologies base de données. Le tout est posé à l'Université Louis Pasteur qui en assure la maintenance et les évolutions.

(vii) What are the instructional materials and resources used and how do the students access them?

Un ordinateur connecté au réseau Internet et un navigateur Internet. Il est possible de synchroniser également le contenu du cartable numérique sur un stick USB pour ceux qui n'ont pas le réseau. Dans ce cas, une synchronisation est possible.

(viii) Are there other learner services available through ICT?

Les projets internationaux se sont développés dans le projet ARIANE Dijon à partir de ces usages.

(ix) Are there known pedagogical results with this practice?

Un certain nombre de résultats sont disponibles notamment à propos des pratiques des enseignants qui se comportent différemment en accélérant notamment le temps et le rythme de leur cours.

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

L'adhésion de l'ensemble des acteurs et l'augmentation tendancielle des usages par tous est un des meilleurs critères d'évaluation. C'est en ce moment en France, la seule véritable opération qui fonctionne en continue.

(xi) Has this "good practice" been officially recognized, "labelled", presented in conferences? If so, when and by whom?

Le projet ARIANE Dijon est reconnu par le ministère qui la largement médiatisé à l'occasion du Salon de l'Education. Il va être présenté officiellement par la rectrice de Dijon, madame Josianne Attuel, et par la ministre de la recherche, Madame Haigneré, les 20 et 21 mars à l'ensemble des collectivités territoriales françaises qui seront invitées à cet effet dans l'académie de dijon pour visiter et voir comment au collège, au lycée, dans un IUT, les établissements utilisent ce qui leur est mis à disposition.

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

Au centre de ces problématiques, le projet ARIANE Dijon place les collaborations avec des établissements européens.

(xiii) Could a peer review³¹ visit be organised? Can you suggest possible dates?

Pour une part, il est peut être possible de se raccrocher à l'opération des 20 et 21 Mars en même temps que les collectivités territoriales ou tout autre moment.

³¹ See previous page.

(xiv) Contact reference for the initiative

odile.de-chalendar@education.gouv.fr

alain.jaillet@ulpmm.u-strasbg.fr

marie-ange.arnoux@ac-dijon.fr

site de démonstration et d'hébergement d'une partie du projet <http://esv.u-strasbg.fr>

B 3. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

La main à la pâte/ école primaire est un projet lancé en 1996. Il a été mis en œuvre par l'académie des sciences, l' INRP et le ministère de l'éducation nationale dans le domaine des sciences

(ii) What are the main intentions in integrating IT in this course or experience?

En 1998, La main à la pâte a ouvert un site Internet destiné à accompagner les enseignants qui souhaitent pratiquer des sciences en classe. Le site représente un véritable outil d'auto-formation. Il offre des ressources produites en majorité par les enseignants.

Une liste de diffusion de 1500 abonnés favorise les échanges entre enseignants. Ces derniers peuvent également poser leurs questions à des centaines de chercheurs scientifiques et à des formateurs.

Par ailleurs, un réseau de 12 sites départementaux présente des ressources produites localement.

Des sites miroirs ont été créés en Chine et au Brésil. Un site international est en cours de réalisation.

(iii) How are the students evaluated? With what criteria or indicators?

Cf les résultats de l'évaluation de Lederman menée aux Etats Unis et dont le projet français s'inspire.

http://www.tams.org/resource_assets/410/Statewide%20presentation.pdf

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

Il s'agit d'une démarche active : les élèves sont mis en situation de questionnement, d'observation, d'expérimentation et de raisonnement.

Il existe un lien fort avec le langage : argumentation , pratique de la langue écrite et orale – cahier d'expériences.

Le travail d'équipe est très présent.

On not aussi l'ouverture de l'école vers l'extérieur et en particulier vers le monde de la recherche.

(v) Student activities: assignments, communications, group work vs individual work

Un protocole d'expérimentation est mis en œuvre et les travaux des élèves se font en groupe avec chacun ayant une place déterminée.

(vi) What technology is used? Is there available technical support?

Site web (page html, pdf, animation flash), moteur de recherche (texte simple, multicritère), liste de diffusion, mail (via un formulaire) , édition de pages web, cédérom.

Nous disposons d'une aide en ligne et répondons aux questions techniques que nous recevons par mail.

(vii) What are the instructional materials and resources used and how do the students access them?

Les ressources pédagogiques sont disponibles gratuitement sur Internet. Elles nécessitent un matériel simple et peu onéreux. Toutefois les enseignants peuvent se procurer des malles de matériel chez un fabricant implanté nationalement.

(viii) Are there other learner services available through ICT?

(ix) Are there known pedagogical results with this practice?

Un rapport de l'Inspection Générale effectué M. Sarmant est disponible en ligne
<http://www.inrp.fr/lamap/main/rapport/accueil.html>
Il n'y a pas d'évaluation nationale

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

Le ministère de la jeunesse, de l'éducation nationale et de la recherche considère ce projet comme l'un des plus exemplaire. Nous en voulons pour preuve que le site Primlangue d'apprentissage des langues a été bâti sur ce modèle.

(xi) Has this "good practice" been officially recognized, "labelled", presented in conferences? If so, when and by whom?

Prix eLearning 2001 catégorie eTeaching

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

Deux projets coopératifs internationaux : l'europe des découvertes (encycloscience.eun.org) et Sur les pas d'Eratosthène (www.inrp.fr/lamap/eratos03) mettent en relation des classes de primaire de 18 pays autour de sciences. Ces projets ont été initiés à l'occasion d'eSchola pendant laquelle la France a mis en œuvre une stratégie particulière d'ouverture de grands réseaux à l'Europe par la mise en place d'activités spécifiques européennes.
Le site international mapmonde.org reprend le principe du site main à la pâte mais à une échelle internationale.

(xiii) Could a peer review³² visit be organised? Can you suggest possible dates?

Oui, les 15 sites pilotes main à la pâte peuvent accueillir des délégations étrangères.

(xiv) Contact reference for the initiative

David Jasmin, jasmin@inrp.fr, 00 33 01 58 07 65 95 ou 00 33 6 09 47 15 73

OTHER INTERNATIONAL OR EUROPEAN ORGANISATIONS AND ASSOCIATIONS

³² See previous page.

AGENCY FOR SPECIAL EDUCATION

Policy and Practice in ICT - a Special Needs Education Perspective.

Key Issues from an SNE perspective

1. What are the policies that direct the availability and use of ICT in SNE and how they are co-ordinated and implemented?
 2. The forms of support and training available in ICT for SNE teachers and how the limitations in support and training place constraints upon the introduction of new technologies into the classroom situation
 3. The current and perceived future developments in the field and how they may impact on SNE
 4. The key information sources available for teachers and professionals who support them and how they can be linked to more “mainstream” IST debates
- Challenge: access to ICT solutions for all

Guiding Principles

Salamanca Statement (1994):

- ... regular schools with (an) inclusive orientation are the most effective means of combating discriminatory attitudes, creating welcoming communities, building an inclusive society and achieving education for all
- ... ensure that special needs education forms part of every discussion dealing with education for all in various forums

An information society for all needs to consider and meet the needs of the least, as well as most able of its citizens

An increase in the digital divide that currently exists for children in our schools and classes will increase discrimination and exclusion

Access to appropriate ICT be seen as a question of entitlement.

Policy, provision and practice

One of the crucial debates within the ICT research and development arena at present is the application of inclusive by design principles – that is the diverse range of users’ needs are considered at the outset of designing hardware or software; their needs are not considered later and met as some form of adaptation to the already existing product.

In order to build a truly inclusive information society, educational approaches and appropriate technology must be developed that meet the requirements of all users, including those who have special educational needs. Access to appropriate ICT can reduce inequalities in education and ICT can be a powerful tool in supporting educational inclusion. However, inappropriate or limited access to ICT can be seen to reinforce inequalities in education faced by some pupils including those with special educational needs. The digital divide that could potentially develop within countries’ educational systems (Eurydice, 2001) can be seen be particularly significant within the special education sector.

The principle of inclusive by design needs to be applied during the planning, financing and formation, implementation and evaluation of ICT policies, provisions and practices. The SEN-IST-NET consortium (2001) argues that an *inclusive approach to the development of a new learning culture in general and to technology-enabled learning in particular* is required. As a starting point for this, it maybe necessary to identify the elements of education, ICT, and ICT

in SNE policies and practices that make some policies more inclusive in their impact than others.

It can be argued that there is a need for a shift in focus of ICT in SNE policies and programmes. Previously the emphasis has been upon establishing the means (infrastructure in terms of equipment and expertise) to enable ICT to be effectively applied in SNE settings. The evidence from this study suggests that practitioners in the field are now asking for the emphasis to be placed upon the ends, the aims and goals, of using ICT in SNE and not just the means of that use. Such a focus would help inform debates about the development of appropriate infrastructure, but would most importantly focus attention upon why and how ICT can be most appropriately used in different educational contexts. Significantly, this shift in emphasis would help centre attention upon using ICT to learn in different contexts rather than upon just learning to use ICT in different ways. Genuine inclusion of ICT in the curriculum for pupils with SENs will only occur when the full potential of ICT as a tool for learning is understood.

(Taken from: European Agency for Development in Special Needs Education, Edited by Watkins, A. (2001) Information and Communication Technology (ICT) in Special Needs Education (SNE) Middelfart, Denmark)

Future Visions

The future for ICT in SNE Policies?

Policies should be trans-sectoral and underpinned by the philosophy of:

Meeting individual learners' needs

Promoting a School for All

Promoting inclusion within all educational sectors

Policies need to have phases of development:

In the short term a recognisable (separate) specific action plan/strategy/policy for ICT in SNE

In the medium term, ICT in SNE becomes part of general strategy plans

In the long term, ICT or SNE is not mentioned, but is accepted as "a given"

Policies need to provide the long term vision, but be flexible enough to reflect local level needs and major initiatives in all educational sectors

The future for ICT in SNE Practice?

Development of regional, national and international networks to facilitate the connections between good practice and resource centres and individuals

An in depth analysis and description of the factors leading to good practice in order to develop guidelines for support structures

More co-ordinated information about technology resources

Creation of virtual resource centres in connection with "physical" resource centres

Virtual and physical possibilities for exchanges between all professionals in the field

All schools have opportunities to join networks and partnership projects

Specialist, pedagogy based ICT in SNE training needs to be extended

More support for school development and change initiatives

Establish guidelines concerning use of ICT as a means of supporting inclusion and facilitating access to the curriculum

Support team work between teachers and other professionals

Ensure all hardware and software follows the principles of design for all

The future for Research & Development?

The focus should be upon learning and how to improve it

Designing and developing Inclusive Technology to facilitate participation taking account of diverse user groups, user roles, cultures, languages

Instead of reacting, educationalists should be active participants in shaping R & D

New developments both technological and educational should be based on research outcomes

Facilitation of greater interaction between all actors

Basic and applied research is needed, the latter being practical and realistic

Common procedures, guidelines, evaluation criteria, standards, policies should be developed

There needs to be a balance between market forces and regulations

A multi-disciplinary approach is required

Communication and exchange platforms and networking of researchers (e.g. via conferences, technical platforms) is necessary

Development of an effective knowledge base

Development of guidelines regarding inclusiveness

(Taken from the Draft Paper: ICT in SNE - Future Visions for Policy, Practice and Research & Development. Findings of the Lisbon Conference, to be published by the European Agency for Development in Special Needs Education, 2003)

A. Examples of good policy practice in integrating ICT in education and initial vocational education

(i) Origin of the policy: Decision, regulation, consultation, dialogue, consensus, or other? By whom?

I would like to refer you to three examples of policy that are good examples of attempts to promote the use of ICT to support inclusion in countries:

Swedish National Policy

UK National Policy

Norwegian National Policy

(ii) Description of the policy: target groups, duration, outcomes

For descriptions, please refer to presentation files in attachment.

(iii) Known opinions, reactions, appreciation of those concerned by the policy: teachers, students, administration, parents, other.

(iv) What are the criteria for qualifying this practice as “good”: who qualifies it and why?

I have selected these as they appear to apply principles that support the use of ICT in inclusive settings identified by the Agency as important factors. Please see the extract in attachment.

(v) Are there any known pedagogical results obtained with this policy?

(vi) Is there a European dimension to this policy? If any, could you describe it?

(vii) Could a peer review³³ visit be organised? Can you suggest possible dates?

I am sure peer reviews would be acceptable and the Europeans Agency would be happy to facilitate this.

(viii) Contact reference for the initiative

Sweden - Ulla Barthelson ulla.barthelson@sit.se

UK - Terry Waller [terry_waller@becta.org.uk]

Norway - Gry Hammer Neander [Gry.Hammer.Neander@ls.no]

B. Examples of good pedagogical practice in integrating ICT in education and initial vocational education

(i) Identification of course or experience: level of teaching/learning, duration, institutional context, content theme

³³ A peer review is one of the methods indicated as a way of sharing good practice within the context of the Open Method of Coordination. It will involve a visit by a number of expert colleagues (peers) to document and study the example of good policy practice. It could include meetings with policy makers, meetings with those responsible for the delivery of the policy, and its implementation on the ground, and an opportunity to exchange views with colleagues throughout the visit in order to determine what may be of interest for individual participants. Normally a visit would include 2/3 members of the expert group, an academic expert, and a Commission official.

I would like to refer you to the European Agency ICT in SNE examples database which contains examples of practice from a number of countries that have been suggested by country representatives as interesting applications of ICT in different SNE settings: http://www.european-agency.org/ict_sen_db/index.html

(ii) What are the main intentions in integrating IT in this course or experience?

As you will see from this, within the agency we have already discussed some of the issues surrounding the collection of examples of practice (what sorts of information is needed to make an example useful to colleagues working in different contexts; are only “good” examples useful).

(iii) How are the students evaluated? With what criteria or indicators?

(iv) What is the basic pedagogical method: types of teacher-student interactions, duration, role of teacher and role of student

(v) Student activities: assignments, communications, group work vs individual work

(vi) What technology is used? Is there available technical support?

(vii) What are the instructional materials and resources used and how do the students access them?

(viii) Are there other learner services available through ICT?

(ix) Are there known pedagogical results with this practice?

(x) Who characterises this practice as good and why? What are the main criteria and indicators?

These sorts of issues and discussions are the subject of an on-line forum (moderated by the Agency) as part of a DG IST project: SEN-IST-Net. The debate has only just begun but there are some issues already being raised. Please go to: <http://www.senist.net/> and log on to SIG 5 (Examples of Practice) for more specific information.

(xi) Has this “good practice” been officially recognized, “labelled”, presented in conferences? If so, when and by whom?

(xii) Does this practice develop a specific European dimension in its integration of ICT or could it correspond to a general or specific European interest for educational actors?

(xiii) Could a peer review³⁴ visit be organised? Can you suggest possible dates?

If a specific practice is identified from the database, the agency can facilitate contact and I am sure p-peer reviews would be welcomed.

(xiv) Contact reference for the initiative

Other information: Power Point presentations on good practices in UK and Sweden, with a view to using ICT in special education.

³⁴ See previous page.
