sponsors of the conference

IBM

European Schoolnet

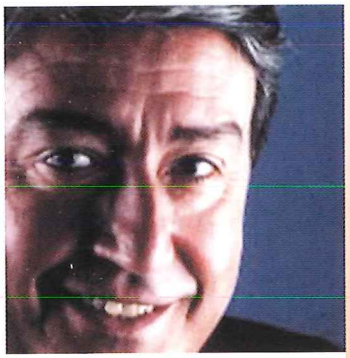
Le@rning in the new millennium

building new education strategies for schools...

20-21 March 2000

Just Connect

RM/11-12. XII. 00



FOREWORD

The networked economy has arrived.

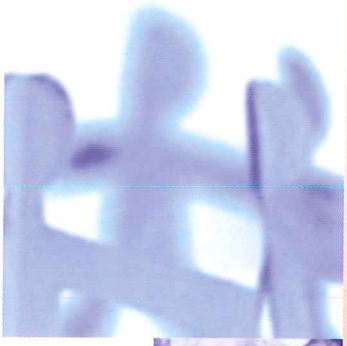
Eighteen months ago when we launched the European Schoolnet there were fewer than 40 million Internet users in Europe. By the end of 2000 it is estimated there will be three times that number. As the growth of the Internet continues, it is clear that the ability to use information and build a culture based on knowledge and the capacity to learn will be key determinants of economic success.

The central role of education in transforming the European economy was underlined in the communication from the European Council's summit in Lisbon, which set goals for Europe to become the world's leading economy. To achieve those goals, Europe's education system, like the business world, needs to adapt to the digital environment. Investing in hardware and infrastructure are crucial foundations of this process, but insufficient on their own. The key to fundamental transformation in education is change at the level of organisations, professional practice, and the capability to exploit information and communications technologies for collaborative working, sharing resources and knowledge management.

European Schoolnet is leading this transformation process for schools in Europe by setting an example in the use of the Internet. This year's conference set out to define future strategies to help spread such practices. Delegates from education ministries across Europe identified the key areas to focus effort. Above all they emphasised the need to act with urgency.

IBM is pleased to have worked in partnership with European Schoolnet to plan and host this second conference. An effective education system that prepares young people for the digital economy is critical for business success in Europe. Business can help to speed the process of change, particularly by contributing experience and expertise and by applying skills and resources in partnership with government and other institutions.

Lucio Stanca
Chairman
IBM Europe Middle East Africa



acknowledgements

The EUN would particularly like to thank the following workshop leaders and rapporteurs for their contribution to the conference as well as all those who participated in the Science Centres' Showcase Presentations:

Changing Working Methods

Chair: Odile de Chalendar, Ministry of Education, France
Rapporteur: Roger Blamire, EUN, Belgium

Learning in Virtual Environments

Chair: Rogelio Segovia, Hilo Musical Telefonica, Spain
Rapporteur: Pierre Dillenbourg, Cognition & Design, Switzerland

Organisational Change

Chair: Isabel Oliveira, Ministry of Education, Portugal
Rapporteur: Peder Kjøgx, PLS, Denmark

Teacher's role and Teacher Training

Chair: Ferry de Rijcke, Ministry of Education, Netherlands
Rapporteur: Nikitas Kastis, Lambrakis Foundation, Greece

Recognition of Skills and Competencies

Chair: Marino Ostini, Ministry of Education, Switzerland
Rapporteur: Jim Ayre, Multimedia Ventures, UK

Science Centres' Showcase Presentations

Chair: Lilla Voss, Ministry of Education, Denmark
Contributors: A. Bandelli, ECSITE Project manager for BIONET
R. Jackson, Head of Education, Science Museum, London
Fondazione IDIS, Naples, Italy
M.J.M. Sani, La Cité des Sciences, Paris, France
M. L Thomas, Musée des Sciences et des Techniques de Parentville, France
M.S. Pizzey, Science Projects, London, UK
Dr. Th. Brandlmeier, Deutsches Museum, Munich, Germany
E. Marshall, Hall of Science, New York

workshop papers

Changing working methods

Chair: Odile de Chalendar
Rapporteur: Roger Blamire
prepared paper: http://www.en.eun.org/conference2000/Docs/workshop1.doc

Learning in virtual environments

Chair: Rogelio Segovia
Rapporteur: Pierre Dillenbourg
prepared paper: http://www.en.eun.org/conference2000/Docs/workshop2.doc

Institutional change

Chair: Isabel Oliveira
Rapporteur: Peder Kjøgx
prepared paper: http://www.en.eun.org/conference2000/Docs/workshop3.doc

Teacher role and teacher training

Chair: Ferry de Rijcke
Rapporteur: Nikitas Kastis
prepared paper: http://www.en.eun.org/conference2000/Docs/workshop4.doc

contents

page 3 **Foreword**
Lucio Stanca, Chairman IBM Europe Middle East Africa

page 8 **Preface**
Ulf W. Lundin, Chairman of EUN Steering Committee

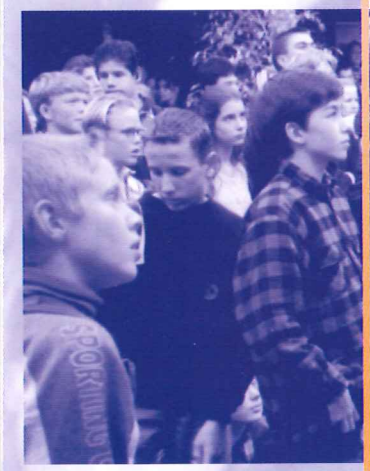
page 10 **Conference Programme**

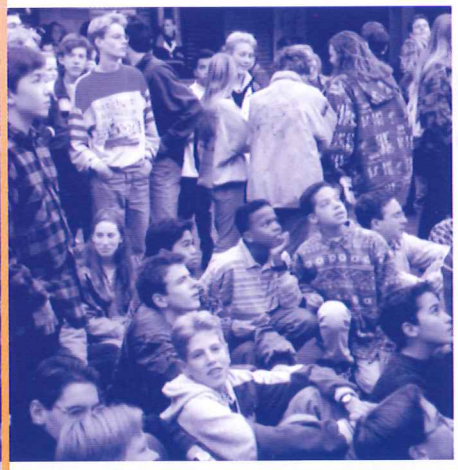
page 12 **Summary report**

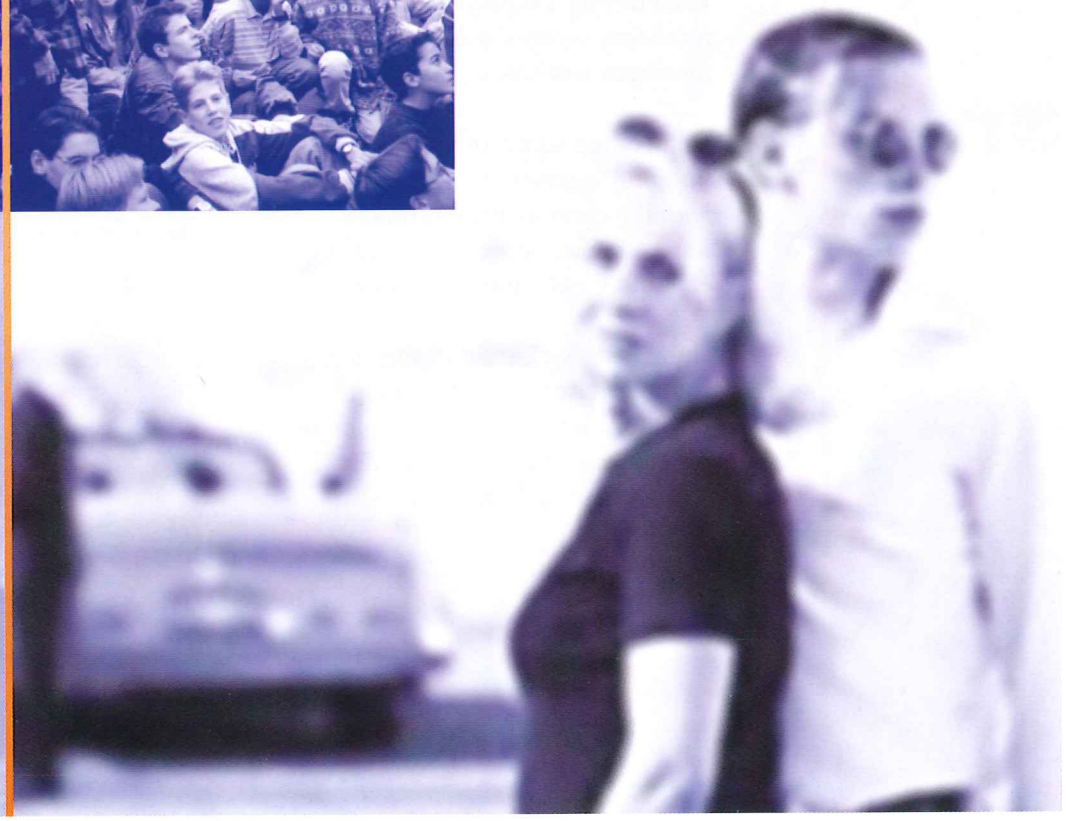
page 14 **Photos and quotes**

Page 16 **10 Conference Propositions**

page 28 **Synergy with eLearning**







Ulf W. Lundin,
Chairman EUN
Steering Committee

preface

European Schoolnet: www.eun.org
The European Schoolnet (EUN) is a joint venture between 22 Ministries of Education of the European Union, the European Free Trade Area and the countries of Central and Eastern Europe. It is funded by a consortium of participating ministries and enjoys financial and political support from the European Commission.
The EUN was established in March 1997 when the Ministers of Education of the European Union and the European Commission agreed to a proposal from Sweden. The European Schoolnet originally had two key tasks:

The setting up of a virtual multilingual European campus for learning and collaboration designed as a gateway to national and regional school network sites and resource centres.

The establishment of a European network for innovation and the exchange of information on ICT in education.

Over the last three years much has been achieved and the EUN has clearly become a major force for such collaboration in European education. Notable achievements have been:

Setting up an active network of national networks, ministries, the Commission and practitioners in 22 countries, unique in the world, providing benefits for a potential 5.5 million teachers and 340,000 schools

Establishing a highly-rated web site and communications platform providing visitors with a wealth of European added value activities, resources and services

Completing some 16 groundbreaking Commission-funded projects bringing together over 80 public and private sector partners to create learning communities, promote innovation and develop content by exploiting emerging technologies

Organising kick-off and Year 2 conferences and a contributing to numerous international seminars for key players leading to fruitful exchanges of information and collaboration.

preface

At its second conference in March 2000, the EUN attempted to consolidate and build on these successes, to develop actions aligned with national schoolnet priorities and to the European Commission's emerging eEurope targets for 2002. To this end the conference developed Ten Propositions that it believed would inform and fuel the ongoing debate concerning the school of tomorrow and the wider impact of ICT on education.

This brochure outlines these Ten Propositions which the EUN is now using to help shape its work programme for 2001 and beyond - a work programme offering a coherent set of activities, services and projects that will continue to provide the sort of European added value described in the eEurope proposals:

> *"The assurance that technological solutions, software and content are not developed at national level in isolation. Member States should be able to learn from each others' experiences and build upon each other's achievements."*

Through its conferences and via the virtual community it has established on the web, the EUN continues to demonstrate that it is an essential 'network of networks' helping ministries and teachers from all over Europe to share best practice and be both inspired and motivated to seize the pedagogical opportunities offered by online learning. If you were unable to attend the second EUN conference, I hope you will be challenged by the EUN Ten Propositions and join with us on www.eun.org to help translate them into action.

Finally, I would like to express once again my thanks to Mr. Lucio Stanca, Chairman of IBM Europe, Middle East Africa. The example of IBM's Reinventing Education programme and vision of 'pervasive computing' were certainly excellent catalysts for two days of intense and exciting workshop discussions. IBM's support to the conference

monday 20 march

10.30 **Registration**

10.30 **IBM Workshop:** Pervasive Computing: new opportunities for ICT in education
Mr. Richard Greenway, Consultant, Pervasive Computing
Mr. Jim Schnitz, Education Strategy Executive, IBM Global Education

11.30 **IBM workshop repeated**

12.30 **Lunch**

13.45 **Opening plenary session (Chair Mr. Lucio Stanca)**
Welcome by **Mr. Lucio Stanca**, Chairman IBM Europe Middle East Africa
Welcome by **Mr. Ulf W. Lundin**, Chairman EUN Steering Committee

14.00 **eEurope. Shaping the school of tomorrow**
Mr. Erkki Liikanen, Commissioner Enterprise and Information Society, European Commission

14.30 **Youth in the Information Society - wishes for the future**
Ms. Mette Hviid Jacobsen, student Aalborg University, Denmark
Ms. Sophie Gay, student, Lycée international de Valbonne, France
Ms. Cátia Marlene Pereira Gradim, Escola Secundària de Esmoriz, Portugal

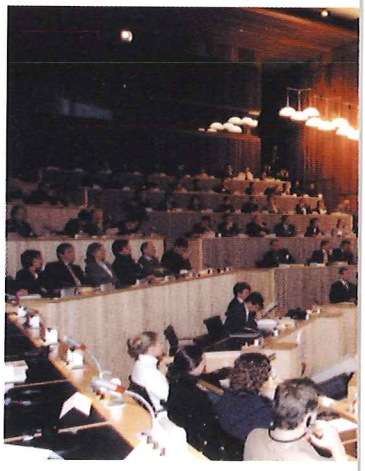
15.00 **Bringing ICT to schools - visions and strategies**
Mr. Pierre Hazette, Ministre de l'Enseignement secondaire et de l'Enseignement spécial de la Communauté française de Belgique
Mr. Luigi Berlinguer, Ministro della Publica Istruzione, Italy (by videolink)
Dr. Guilherme d'Oliveira Martins, Ministro da Educação, Portugal
Mr. Michael Wills, Minister for Learning and Technology, Department for Education and Employment, United Kingdom
Moderator: **Mr. Alex Taylor**, Continental Connections

17.30 **Coffee Break**

17.30 **Workshops**
Changing working methods
Learning in virtual environments
Organisational change
Teachers' roles and teacher training
Recognition of skills and competences
Showcase presentations

18.30 **Visits to Showcase exhibition**

19.30 **Cocktail and Dinner**



thuesday 21 march

09.00 **Workshops continued**

10.30 **Break**

11.00 **Workshops continued**

12.00 **Lunch**

13.30 **Closing plenary session** (Chair: **Mr. Jim Ayre**, Multimedia Ventures)
Developing ICT for schools - Key priorities for action
Mr. Stanley Litow, Vice President, IBM Corporate Community Relations
Professor Stephen Heppel, Ultralab, Anglia Polytechnic University

10 Propositions for the development of ICT in schools report from the workshops, **Mr. Roger Blamire**, EUN

14.00 **Building new education strategies for schools**
Professor Stephen Heppel, Ultralab, Anglia Polytechnic University
Mr. Stanley Litow, Vice President, IBM Corporate Community Relations
Mr Marc Bellet, Member, Commission7, Committee of the Regions
Ms Clara Danon, Sous-directrice des Technologies éducatives et des Technologies de l'Information et de la Communication, Ministère de l'Education nationale, de la Recherche et de la Technologie
Mr. Marc Luwel, Adjunct-Kabinetschef, Hoger Onderwijs, Wetenschappelelijk Onderzoek en Lerarenopleiding
Ms. Mónica Ridruejo, Member Committee on Culture, Youth, Education, the Media and Sport, European Parliament

15.00 **eLearning. European Priorities for ICT in schools**
Mrs. Viviane Reding, Commissioner Education and Culture, European Commission

15.30 **End of conference**

SUMMARY

Erkki Liikanen

REPORT

The European Schoolnet (EUN) Conference 2000, "Learning in the New Millennium: Building New Education Strategies for Schools" brought together representatives from more than 20 Ministries of Education in Europe for two days of discussion and debate.

Erkki Liikanen, European Commissioner for Enterprise and Information Society, opened the European Schoolnet Conference by emphasising the crucial strategic role which education has to play in the creation of eEurope and the importance of promoting digital literacy among all European teachers and students.
"To truly create digital literacy for all students as a living reality, very committed collaborative efforts are needed by all involved," Commissioner Liikanen said. "I believe that students themselves are the most committed ones, the challenge is for all the rest of us, in both the public and private sectors."

The discussion in the opening session of the conference about "Visions and strategies for bringing ICT to schools" between Mr. **Pierre Hazette**, Ministre de l'Enseignement secondaire et de l'Enseignement spécial de la Communauté française de Belgique, Mr. **Luigi Berlinguer**, Minister of Education, Italy (by videolink), Mr **Guilherme d'Oliveira Martins**, Minister of Education, Portugal and Mr **Michael Wills**, Minister for Learning and Technology from the United Kingdom covered a broad range of issues and demonstrated the richness of initiatives already in place.

In her closing address to the conference, the Commissioner for Education and Culture, **Viviane Reding**, called for swift and decisive action by the Member States of the European Union to make schools part of the Information Society and to give all of them full access to the Internet. She identified the training of teachers in the use of ICT as a key area for actions and challenged in particular the private sector to develop truly European programmes and content for schools.

Viviane Reding

The conference was constructed around five pre-conference papers written by the workshop rapporteurs and illustrated by selected case studies. The papers were discussed on and off line before the conference, and in workshops during the EUN conference.

The subjects covered were:

Changing working methods
Learning in virtual environments
Institutional and organisational change
Teachers' roles and teacher training
Assessment of ICT skills

On the first day of the conference an IBM workshop led by Jim Schnitz and Richard Greenaway also examined the concept of "Pervasive Computing: New Opportunities for ICT in Education".

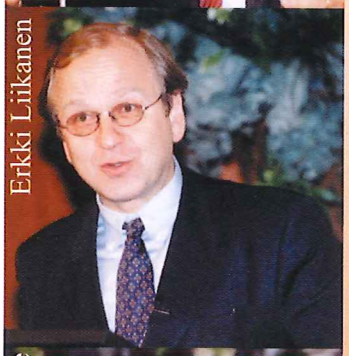
Throughout the conference, the principle theme constantly underpinning discussions was change: in people, in institutions, in the education system, in society, and in technology. The crucial issue is to ensure that change is for the better and is not simply untested innovation or novelty. Identification of strategies for successful management of change is also a key requirement as an increasing number of Europe's four million teachers start to use ICT and online learning environments as part of their everyday practice. Winding up the IBM presentation, Jim Schnitz neatly encapsulated the challenge facing the workshops by recalling David Thornburg's reminder (*The Electronic School*) that, "we are preparing students for their future, not for our past".

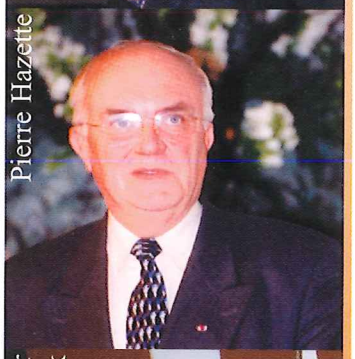
A major output from the conference workshops are Ten Propositions (see page 17). These will help provide a strategic direction to the EUN's work programme and will be used to ensure that a coherent set of European project development activities is developed by the national ministries participating in the EUN.

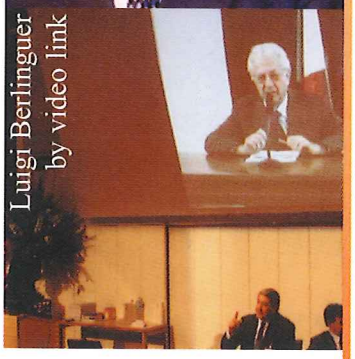
A final version of the European Commission's eLearning proposals started to emerge after the conference (eLearning - Designing tomorrow's education). It is clear that many of the EUN's Ten Propositions correlate with the ambitious objectives being set in order to allow Europe to exploit the educational opportunities offered by the new information and communication technologies. Some of the synergies between the conference Propositions and eLearning objectives are outlined on page 29.

PHOTOS & QUOTES

Lucio Stanca


Erkki Liikanen


Pierre Hazette


Luigi Berlinguer by video link

Lucio Stanca, Chairman IBM EMEA

"IBM was proud to host the first EUN conference eighteen months ago and a lot has happened since then, although this short period of time is deceptive. In my industry, for example, the current measurement of time is the 'web year' which is equivalent to three months in real time. So, by this standard the EUN has actually been in existence for six web years! Eighteen months ago there were fewer than 40 million Internet users in Europe. By the end of 2000, it is estimated that there will be three times that number. The challenge for all of us is to recognise that the networked society really has arrived."

Mr. Erkki Liikanen, Commissioner Enterprise and Information Society, European Commission

"Europe needs a wake up and shake up. The new generation needs to master the use of multimedia and the Internet. That is why the Commission launched the eEurope initiative in December 1999."

"To truly create digital literacy for all students as a living reality, very committed collaborative efforts are needed by all who are involved. Here European Schoolnet represents a valuable European innovation capable of facing this challenge. A willingness and an ability to explore creative ideas, methods and solutions are crucial for all elements of the EUN - an initiative that is firmly based on research and innovation. I'm proud of the fact that the Commission finances the part of research in this undertaking."

Mr. Pierre Hazette, Ministre de l'Enseignement secondaire et de l'enseignement spécial, French Community of Belgium

"We have to help young people in their research. Virtually all students can 'surf' the web. The important thing is to help them to refine their search techniques and to help them select information. A key role for the teacher is to help students to structure the information they find on the Internet and to integrate this within the framework of what is being taught at school."

Mr. Luigi Berlinguer, Ministro della Publica Istruzione, Italy

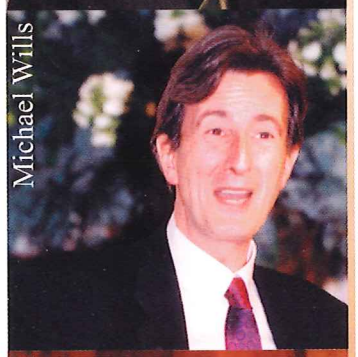
"The era of standalone workstations is largely behind us. In Education networked learning environments represent the new frontier. I cannot stress enough how important it is for us to explore, not just the potential offered by connecting individual computers and classrooms within a school, but also the opportunities that arise when high quality online instruction is made available to remote districts, and regions and schools have access to both national and international networks."

PHOTOS & QUOTES

Guilherme d'Oliveira Martins

Dr. Guilherme d'Oliveira Martins, Ministro da Educação, Portugal

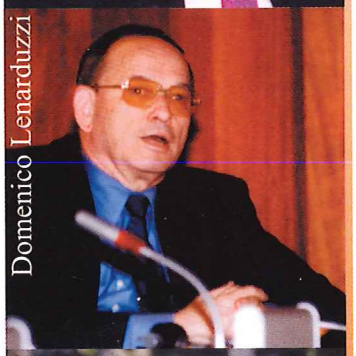
"eLearning provides us with concrete objectives at a European level. It also underlines that we are building a new society based on a knowledge economy, the acquisition of information skills and the promotion of the concept of lifelong learning."


Michael Wills

Mr. Michael Wills, Minister for Learning and Technology, Department for Education and Employment, United Kingdom

"I'm delighted to see that, in the six web years that Schoolnet has been active, it has already proved its worth as an invaluable facilitator for educational and information exchanges across Europe. I think it is crucially important that it continues this role of disseminating information and providing links for our learners."

"We shouldn't ever forget that, miraculous as many of these technologies are, at the heart of the learning experience there is always going to remain the teacher."


Domenico Lenarduzzi

Mr. Domenico Lenarduzzi, Directeur général adjoint, European Commission

"Training and motivating teachers to exploit the potential of ICT is going to be extremely challenging. Let us not forget that fifty per cent of our teachers are over the age of 45 and their initial training took place at the beginning of the sixties or earlier when the Internet and desktop computers did not exist."

Viviane Reding

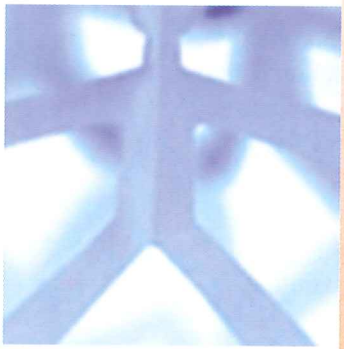
Mrs. Viviane Reding, Commissioner for Education and Culture, European Commission

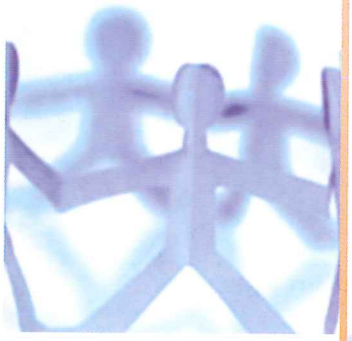
"If I say we need a crash political action with eLearning, I mean it. It is not the time any more to address the issues via. traditional mechanisms whereby we have long discussions plus several stages of consensus forming and disagreements before we start to think about what is actually happening in the real world. No, the reality is that our actions needed to start yesterday! By the end of 2001 we really must have all our schools equipped with the necessary infrastructure."

European Schoolnet

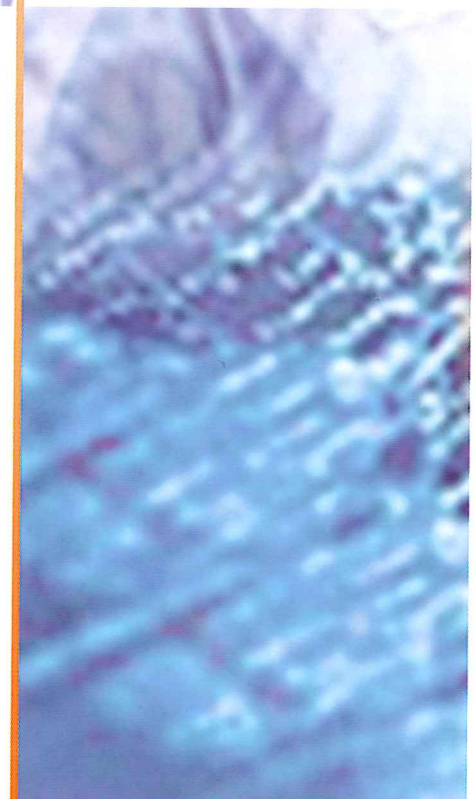
EUN conference 2000
La Hulpe Brussels

10 EUN PROPOSITIONS FOR ICT IN EDUCATION





The following ten statements and pointers for action reflect the views expressed in the prepared papers and in conference discussions. Aimed at different stakeholders in education, they are closely related to key issues in ministries and to eEurope and eLearning. Throughout the next twelve months, the propositions will be used to underpin the strategic direction of the EUN's work programme and new EUN projects, in partnership with the Commission, ministries and business.



10 EUN PROPOSITIONS for ICT in education

1 Motivate all teachers to exploit the potential of ICT and create a critical mass of digitally literate teachers - 'no change' is not an option.

Despite the range of topics discussed, what emerged time and again was the crucial role of the teacher - the specific subject of the first and fourth workshops, but ultimately of all the discussions. It is tempting to let technological considerations shape change, not educational principles or people. There was a strong consensus that if we are to raise standards and improve school efficiency with ICT, a critical mass of digitally literate teachers working in new ways needs to be reached.

Pointers for action:

Top down actions for policy makers:

Make it clear that no change is not an option: "Teachers are going to have to change," as one minister categorically stated at the conference.

At the same time recognise that change can only come from within, and so:

- Provide the motivation for teachers to want to change: promote the new opportunities for teachers opened up by ICT - to save time, raise standards and motivate learners, develop different career paths and increase rewards
- Make change easy, safe, worthwhile and rewarding
- Provide the tools, including computers for teachers at home and reliable technical support in school

Consider widening the scope of a teaching career, e.g. supporting portfolio careers, para-teachers, and e-teaching.

Bottom up actions for teachers:

Create and take part in varied and purposeful peer support communities:

- Discuss, share and see solutions using Internet-based forums and networks of people
- Insist on time for yourself as a teacher to reflect, learn, and develop digital literacy
- Build on new student skills and expectations - young people as an agent of change.

10 EUN PROPOSITIONS for ICT in education

2 Dare and share

Three words sum up much of the discussions across the workshops and conference generally: urgency, communication, speculation. First, there was a consensus that the window of opportunity was small and that action was needed quickly to bring about the necessary changes in the education system to enable young people to become 'eCitizens' participating fully in the creation of a strong European knowledge-based economy. Second, at a time of rapid change, the value of effective coherent communication can play a strong role in removing inhibitors to change; communication includes informing, listening, exchanging ideas, marketing and promoting. Third, the pace and impact of technological change is so fast and its likely benefits are such that it is not possible to predict accurately or plan in detail; in this climate decision-makers should be encouraged to 'think big', to take risks at times and encourage diversity - in short: be audacious not cautious. Prudence and endless analysis could be more damaging to learners in a digital age than doing something or 'making a start'.

Pointers for action:

Solutions may best be discovered by trial and error; encourage risk and experimentation; allow diversity - be brave not prescriptive.

Be ambitious and visionary: create the age of e-learning; small incremental change may not be enough.

Communicate: ensure that changes make sense to teachers (and other stakeholders, including parents, voters, employers) and create opportunities for ownership.

Provide effective channels for teachers, leaders, decision-makers and the private sector to exchange solutions, to ensure that children can have the best possible education and become citizens in a changing world:

- build communities
- help the public sector to understand private sector priorities and vice versa
- develop mechanisms to disseminate quickly what works.

3 Evidence for decision-makers speeds up change

Knowledge about what innovative actions work is fragmented and does not impact on the right people. There are increasingly loud calls from politicians and the media to produce evidence that investment in ICT in education pays off. Faced with difficult choices, policy-makers and school leaders need clear, objective and up-to-date guidance on solutions.

Pointers for action:

Develop knowledge management mechanisms at all levels to share quickly what works, because the window of opportunity is limited.

Build the evidential base quickly - technology is soon obsolete (and findings sometimes invalidated); encourage greater sharing of information across OECD, EU, globally.

Recognise that technology changes too fast for traditional piloting (e.g. WAP mobile telephones, home Internet access, e-commerce); act on formative data while waiting for summative conclusions.

Document scalable initiatives from pilots to large projects, local to national, national to European scale.

Identify and make easy to find compelling evidence to inspire and inform; disseminate (via the EUN) what works and what is happening across European classrooms, and educational systems.

Target customised information at sub-groups, e.g. teachers (stressing time saved, easier administration and improved results), industry and policy-makers.

10 EUN PROPOSITIONS for ICT in education

4 Reach the critical mass quickly

We are facing a situation in which traditional methods of helping schools and teachers to adapt may not provide the changes needed. Exhortations and small-scale fragmented projects do not add up to the rapid systemic change required and both innovative teachers and commercial suppliers are becoming weary of a long succession of 'pilots'. Increasingly, education risks being left on the runway as ICT fully takes off in homes and the wider consumer and business communities. Both policy makers and individual teachers need to move up several gears and recognise that the emerging concept of 'Internet time' in the private sector necessitates a new dynamic for educational change and a need to achieve critical mass quickly.

Pointers for action:

In a networked society, 'value' is proportional to the number connected to the network: effort should be focused on moving the education system as quickly as possible to the crucial point where exponential change and value start to be realised

Align effort: through concerted action of change agents (ministries, industry, municipalities, researchers, examiners), create:

- connected and equipped classrooms
- a majority of trained teachers
- good content and services.

Prioritise viability: be clear on what to do (e.g. to overcome the digital divide, encourage home learning), to whom and when.

Adopt some of the best marketing and communication practices from the private sector to revitalise 'dissemination' strategies.

5 ICT is not necessarily subversive - allow teachers to adopt ICT and change their teaching methods on their own terms

There is a difference between what ICT can potentially achieve in terms of re-engineering the education system and what is actually implemented. A frequent argument is that ICT, through its empowerment of the individual, collaborative nature, and opening up of alternative learning routes, forces a rethink of teaching and learning towards constructivist (i.e. learner centred, 'discovery') methodologies. This argument will arouse hostility among a significant number of teachers, parents and politicians who are concerned about raising standards, developing basic skills in reading and writing, and who consider that whole class teaching is often more effective than other methods. Change for them is then perceived as a more fundamental challenge to their philosophy of education; they might regard ICT as the Trojan horse of educational revolutionaries.

Pointers for action:

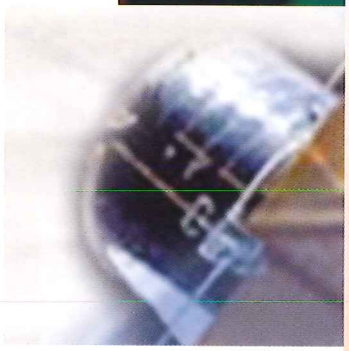
Separate out thinking about the 'subversive' potential of ICT and recognise that other views are no less valid. Encourage debate about re-engineering schooling and even de-schooling society, but recognise that ICT can also yield more mundane and less threatening improvements.

Showcase to teachers and school leaders how ICT can support 'traditional' methods, for example the use of data projectors, large monitors and interactive whiteboards to increase the impact of whole class teaching.

Stress how ICT can streamline management and administration tasks, reducing the bureaucratic burden on schools and freeing teachers to teach - something no one finds controversial.

Give teachers space and ownership to create change on their terms.

10 EUN PROPOSITIONS for ICT in education



6 Organisational change is about individual and collective change and will be deeply affected by the wider social impact of ICT

The environment within which schools function is being radically changed by ICT, and ICT has the potential to transform education. The fact that children actually spend only 10% at most of their lives to age 16 in classrooms is becoming more significant: more and more informal learning can and will take place outside schools. With new interactive television services and Web-enabled game devices, a large number of homes will quickly have user-friendly access to high quality educational and 'edutainment' content. Low-cost, wireless PDAs and information devices will also allow pupils to remain connected and to communicate and access learning content irrespective of time and place. Switching off this connectivity when one enters school is a retrograde step and increasingly will not be seen as an acceptable option. The school as an organisation, therefore, will have to change to accommodate the wider social impact of ICT. Creating this paradigm shift to becoming a learning organisation calls for action at teacher, institutional and national level.

Pointers for action:

Highlight new scenarios and visions, stressing a more fluid concept of what constitutes a learning space and consider the likely impact of broader social changes (e.g. ubiquitous computing and communications and IBM's concept of 'pervasive computing') on the school of tomorrow.

Develop school leader skills; they set the tone for the learning organisation, even though a learning culture does not depend on one individual.

Stimulate debate about mainstreaming innovation: the future school and its added value (e.g. over virtual schools) and the future teacher (e.g. 'teaching as a collective performance').

Given that more ICT use takes place in homes than schools, encourage schools to play a wider role in the child's learning environment, for example, by providing help infrastructures (web sites, two-way e-mail communication channels) that allow parents to become more involved, and by adopting measures to ensure equity of ICT opportunities in disadvantaged homes.

Push all the levers at all levels: pupil, individual teacher, team/department, school, national, Europe.

Disseminate what works and exchange views and experiences; use the EUN to hold resources and toolboxes and to host discussion areas.

7 Learning in virtual environments can provide real added value

Virtual learning environments (VLEs) exploit the potential of ICT to provide cost-effective individualised learning opportunities unconstrained by time and location. However, they are often developed in parallel with real classrooms and without consideration for user needs and behaviour. For some teachers learning in virtual environments is also automatically regarded as a 'second class' experience which further inhibits recognition of the potential added value of this new delivery method.

Pointers for action:

Consider the existing educational context within which virtual learning environments are to be introduced: how they might integrate with the existing curriculum and pedagogy.

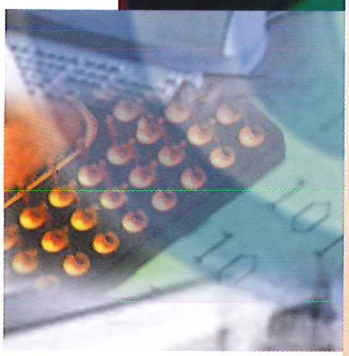
Open up debate about the future learning context for VLEs; examine to what extent the curriculum should be redefined and how it could be taught; for example, the concept of VLEs could include groups of schools developing collaborative environments and schools 'opening up' and involving parents 'virtually'. Consider too the more controversial effects, e.g. what is the best use of learners' time in school, does virtual imply second-best, are young people best taught in same age groupings?

Consider the technical context of use of virtual learning environments. A separate workshop featuring on-line science centres indicated how learners will increasingly use a range of sources, but they need to interoperate. Ensure VLEs form an integrated environment, i.e. not standard tools being juxtaposed in a single window but deeply integrated multiple tools which share the same data structure and interface features. Make VLEs like a desktop, offering a set of tools and a real environment, which is quite different from a portal.

Address the question of content management. This is a key problem, both for the VLE environment, but also for sharing information with other VLEs. Harmonise content management and standards - for teachers to mix and match and schools to collaborate easily.

Balance bottom-up approaches (building on success stories, which highlights issues related to 'scale') and top-down approaches (centralised programmes for developing ICT in schools) plus some kind of top-level support for successful practitioners. A related point is the need for teachers to develop ownership of the new environments.

Allow for diversity: when scaling up, don't force all teachers to fit within the same frame; create a climate of experimentation and recognize that some mistakes will be made, but learn quickly.



10 EUN PROPOSITIONS for ICT in education

8 Teacher training should reflect priorities and be achievable

Professional development has to be based on the perspectives of teachers and schools, as well as the needs of society; expectations must be matched to capacity and means.

Pointers for action:

Take the perspectives of schools and teachers (and of parents and students) as the starting point to define needs and possibilities for sustained development of teachers. Match these with the wider requirements of education systems and society.

Set priorities to meet the demands and expectations made of schools and teachers, then provide them with the tools to meet these priorities.

Stress the new opportunities offered by ICT for teachers:

- The chance to develop new student skills
- Social involvement in and of education
- New tools
- New means of co-operation
- Differentiation in teaching careers

Enable teachers to become professionals. This implies:

- Good career opportunities
- A better job status, including pay
- Consultation of teachers in policy-making
- Responsibility and accountability
- Time, funding and options for professional development.

9 New assessment methodologies and a common measure of ICT competency will reduce the IT skills gap

Digital literacy is vital if young people are to participate in eEurope but current assessment methods inhibit change and do not capture the employable skills young people are acquiring when they use ICT. Serious methodological challenges currently exist concerning how best to measure competencies and the 'legitimacy' of assessment methods is a key issue if we are to 'sell' new competencies to a generally conservative labour market
The problem is complicated by the fact that labour markets in member states are often as diverse as national cultures and arriving at a pan-European certification schemes for ICT competence (both teachers and pupils) is never going to be easy. Workshop discussions also highlighted the importance of developing methodologies for assessing non-formal learning. To date, most of the work here addresses learning that takes place outside formal education and training environments. Increasingly we need to develop methodologies capable of recognising informal or unplanned learning that takes place within schools as pupils work collaboratively and learn from each other.

Pointers for action:

School level:
- Encourage critical handling of the Internet.
- Develop portfolios of achievement to record non-formal learning and process.

National level:
- Revise assessment to capture new skills - 'soft competencies'.
- Allow use of ICT in some examinations. Otherwise, the more learners use ICT and come to depend on it, the less their wider achievement is certificated. Paper-and-pencil tests severely underestimate skills of students whose computer use is high, as compared to the same students tested with computer.

EU level:
- Define trans-national competencies.
- Until then, use what is available - the European Computer Driving Licence is here and, while it has some limitations, the labour market finds it helpful.
- Encourage national examination and accreditation bodies to develop "trust generation" schemes based on a better understanding of each other's recognition methodologies and accreditation procedures.

10 EUN PROPOSITIONS for ICT in education

10 Change requires sustainable business models and possibly a period of high-risk experimentation

The e-economy turns traditional business models upside down. Sustainable business models will only start to emerge after a period of high-risk experimentation and a market shakeout. The same may apply to education, placing suppliers and ministries in a difficult position of being seen to be experimenting with children's futures and inevitably creating some 'losing' models. Some business models may also not transfer to education, given the different concept of the notion of profit in education. However, ICT is impacting most in competitive business-to-consumer and business-to-business markets and providing lessons for education. Moreover, it is recognised that government visions for education cannot be achieved without strong partnership with the private sector. If the educational structure does not connect to commercial frameworks, this partnership will be difficult to achieve.

Pointers for action:

Monitor and analyse how the commercial sector reacts to the digital economy.

Build partnerships between the public and private sector and experiment with innovative and possibly high-risk financial models involving purchasers and providers, consumers and producers.

Provide schools with the confidence to invest long-term in ICT infrastructure by developing predictable funding regimes (e.g. leasing, managed services).

Examine how new tax regimes and incentives can promote ICT take-up.

Develop e-commerce solutions for the education market designed to increase competition and quality of provision, lower costs, and reduce what the state has to pay for.

If you would like to comment on the Ten EUN Propositions contact:
Roger Blamire,
Innovation Manager, EUN,
roger.blamire@eun.org,
+32 2 790 7575

SYNERGY with eLEARNING

"The Commission will undertake at the Community level specific actions bringing together the players involved in education, training and culture and thus fuel reflection and action nationally and Community-wide. This particularly concerns strengthening of the co-operation developed in the framework of the EUN network (the European Schoolnet) which associates 20 education ministries in the European Union, the EEA countries of central and eastern Europe..."

eLearning - Designing tomorrow's education, 24 May 2000

The European Commission's eLearning initiative recognises that the EUN is a key player that it will seek to involve in Community level specific actions. It is clear that the EUN's ten conference propositions can be seen as underpinning many of the ambitious objectives outlined in eLearning. Some of the synergies between the conference Propositions and eLearning are briefly outlined here.

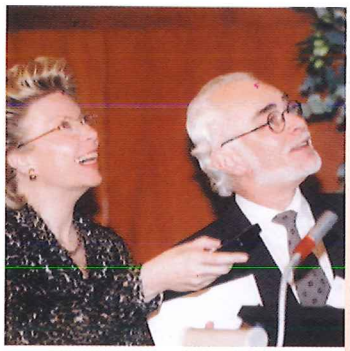
The EUN will use the conference propositions to ensure that its work programme for 2001 and beyond develops actions that are clearly aligned with national priorities and with the eEurope and eLearning targets.

EUN Proposition 1. Motivate all teachers to exploit the potential of ICT and create a critical mass of digitally literate teachers - 'no change' is not an option.

eLearning: *"Objectives for adapting education and training systems to the knowledge-based society: - by the end of 2002 train a sufficient number of teachers in the use of the Internet and multimedia resources"*

The eLearning objective to train a sufficient number of teachers in the use of Internet and multimedia resources by the end of 2002 is in line with the conference's identification of the need to create a critical mass of digitally literate teachers. Beyond this, the EUN conference also recognised that, in order to reach this critical mass, the change process needs to be easy, safe, worthwhile and rewarding for teachers. In short, top-down actions related to training must not end with the provision of training opportunities. In order to ensure sufficient take-up, confidence-building measures for teachers may be necessary and resources may have to be devoted to motivating teachers and actively promoting the new opportunities for teachers and learners opened up by ICT.

SYNERGY with eLEARNING



EUN Proposition 2. Dare and share

eLearning: *Ambitious objectives for Europe*

The conference recognised that the window of opportunity was small and that action was needed quickly to bring about the necessary changes in the education system to enable young people to become 'eCitizens' participating fully in the creation of a strong European knowledge-based economy. eLearning similarly highlights that, if we want to adapt and modernise our education and training system, we require "ambitious approaches and objectives." For the conference this translated into the need to 'dare and share' and the recognition that solutions may best be discovered by trial and error within an educational research environment that encourages risk and experimentation.

EUN Proposition 3. Evidence for decision-makers speeds up change

eLearning: *with a view to enabling experts in the field to analyse precisely and appropriately the current evolutions, observation mechanisms will be developed*

eLearning recognises that "there are no accurate figures available for the number of teachers in Europe who have **real skills** in the new technologies" and that there is a general need for new observation mechanisms to assist policy makers in making informed decisions. The conference similarly highlighted the need for unambiguous evidence that investment in ICT pays off. eLearning specifically proposes the "setting up of observation mechanisms including the development of prospective scenarios to show decision makers the options available and help them shape their strategy." EUN has responded quickly to this perceived need and, with support from the Commission, will shortly launch INSIGHT, an information and knowledge management system aimed at understanding innovation and change in education. Via this initiative, the EUN will identify and make easily accessible a wide range of compelling evidence relating to what works in European schools, a picture of current state of the art in national networks, and future scenarios.

EUN Proposition 4. Reach the critical mass quickly

eLearning: *The first and most urgent of these goals is to quickly exploit the opportunities of the new economy and in particular the Internet.*

eLearning suggests that "if we want to adapt and modernise our education and training systems ... we have to urgently focus our energy at all levels on ambitious approaches and objectives." Participants in the EUN conference shared this sense of urgency and recognised that we face a situation in which traditional methods of helping schools and teachers to adapt may not provide the changes needed. Increasingly, education risks being left on the runway as ICT fully takes off in homes and the wider consumer and business communities. Both policy makers and individual teachers need to move up several gears and recognise that the emerging concept of 'Internet time' now recognised by the private sector necessitates a new dynamic for educational change and a need to achieve critical mass quickly. The fundamental challenge for policy makers may not be simply to have ambitious approaches and objectives but to be able to move quickly enough in order to implement them.

EUN Proposition 5. ICT is not necessarily subversive - allow teachers to adopt ICT and change their teaching methods on their own terms

eLearning: *a new learning environment can be created which favours autonomy, flexibility, decompartmentalisation of subject areas, establishing contacts between centres of culture and knowledge and facilitating access by all citizens to the resources of the knowledge-based society*

eLearning suggests that with ICT a new, more flexible learning environment can be created that is less dependent on subject areas. Conference participants shared this vision but also highlighted the dangers of allowing e-learning to be seen as a force for change that completely challenges most teachers' philosophy of education. The EUN Proposition suggests that ICT is not implicitly 'subversive'. While it can empower the individual and support learner centred 'discovery' methodologies, it can also support 'traditional' methods, enrich familiar subjects and increase the impact of whole class teaching. The EUN conference no less than eLearning is part of a debate about re-engineering schooling and maybe even de-schooling society, a debate to be developed in the EUN's THINK studies for publication in 2001. However, the EUN Proposition also highlights that ICT can yield more mundane and less threatening educational improvements and that it might be difficult to reach a critical mass of digitally literate teachers if we allow the exploitation of ICT to be seen as a too radical departure from existing practice.

SYNERGY with eLEARNING

EUN Proposition 6. Organisational change is about individual and collective change and will be deeply affected by the wider social impact of ICT

eLearning: *eLearning seeks to mobilise the educational and cultural communities, as well as the economic and social players in Europe*

eLearning recognises the contribution that Community research programmes including the Targeted Socio-Economic Research Programme (TSER) can have on the implementation of its vision. The wider social impact of ICT was also considered in several of the conference workshops. Discussions highlighted the fact that children actually spend only 10% at most of their lives to age 16 in classrooms and that more and more informal learning can and will take place outside schools. With new interactive television services and Web-enabled phones and game devices, a large number of homes will quickly have user-friendly access to high quality educational and 'edutainment' content. Low-cost, wireless PDAs and information devices will also allow pupils to remain connected and to communicate and access learning content irrespective of time and place. Switching off this connectivity when one enters school is a retrograde step and increasingly will not be seen as an acceptable option. The school as an organisation, therefore, will have to change to accommodate the wider social impact of ICT and eLearning's intention to draw on the work of socio-economic research activities will clearly be important in this respect. The EUN THINK study will be a key contribution; based on interviews with decision-makers in ministries, industry and research bodies. It will define trends and scenarios for ICT in schools tomorrow.

SYNERGY with eLEARNING

EUN Proposition 7. Learning in virtual environments can provide real added value

eLearning: *will encourage, while fully respecting cultural and language diversity, the interconnection of virtual spaces and campuses, the networking of universities, schools, training centres and, in addition, cultural resource centres.*

EUN conference participants will be encouraged by the eLearning objective to promote the interconnection of virtual spaces and campuses. Delegates were convinced that virtual learning environments (VLEs) can provide real added value by exploiting the potential of ICT to provide cost-effective individualised learning opportunities unconstrained by time and location. However, the conference workshop also highlighted that VLEs are often developed in parallel with real classrooms and without consideration for user needs and behaviour. For some teachers learning in virtual environments is also automatically regarded as a 'second class' experience which further inhibits recognition of the potential added value of this new delivery method. Behind this EUN Proposition is a wide range of 'pointers for action' related to the successful implementation of VLEs which the EUN will elaborate in its work programme. The EUN web site itself is developing into a European Learning Environment and aims to exemplify best practice in VLEs.

EUN Proposition 8. Teacher training should reflect priorities and be achievable

eLearning: *will by the end of 2002 train a sufficient number of teachers in the use of Internet and multimedia resources.*

A key eLearning objective for adapting educational and training systems to the knowledge-based society is increasing the number of teachers with ICT skills and expertise. Clearly a debate will continue on what constitutes a "sufficient" number of appropriately trained teachers and the timetable for achieving this. The EUN Proposition on teacher training is clear that expectations must be matched to capacity and means and, above all, targets for professional development should reflect priorities and be achievable. The EUN conference suggested that we need to take the perspectives of schools and teachers (and of parents and students) as the starting point for defining needs and possibilities for sustained development of teachers. In turn we should then match these with the wider requirements and targets thought necessary by education systems and society.

EUN Proposition 9. New assessment methodologies and a common measure of ICT competency will reduce the IT skills gap

eLearning: *will adopt a European framework to define the new basic skills, which lifelong learning must make it possible to acquire: information technologies, foreign languages, technical knowledge, particularly the introduction of a European diploma for basic information technology skills, issued by means of decentralised procedures.*

eLearning will adopt a European framework to define the new basic skills and lead to the introduction of a European diploma for basic information technology skills. The EUN conference highlighted that current assessment methods inhibit change and do not capture the employable skills young people are acquiring when they use ICT. Serious methodological challenges currently exist concerning how best to measure competencies and the 'legitimacy' of assessment methods is a key issue if we are to 'sell' new competencies to a generally conservative labour market. The problem is complicated by the fact that labour markets in member states are often as diverse as national cultures and arriving at a pan-European certification schemes for ICT competence (both teachers and pupils) is never going to be easy. As it tries to rise to this challenge, conference participants suggested that eLearning must particularly define trans-national competencies and encourage national examination and accreditation bodies to develop "trust generation" schemes based on a better understanding of each other's recognition methodologies and accreditation procedures. The conference also believed that, while they may have some limitations, the European Computer Driving Licence and similar national schemes, are useful for the labour market and provide a foundation on which eLearning can build.

EUN Proposition 10. Change requires sustainable business models and possibly a period of high-risk experimentation

eLearning: *will strengthen the partnership between the public and private sectors, between the players involved in education, training and culture and those in the content industry*

Conference participants endorsed the need for sustainable public-private partnerships but highlighted that simply strengthening current models of collaboration may not be wholly appropriate. This EUN Proposition acknowledges that the e-economy turns traditional business models upside down and that sustainable business models in the commercial sector will only start to emerge after a period of high-risk experimentation and a market shakeout. The same may apply to education, placing suppliers and ministries in a difficult position of being seen to be experimenting with children's futures and inevitably creating some 'losing' models. The conference suggested that building successful public-private partnerships might only be possible after monitoring carefully how the commercial sector reacts to the digital economy and a period of possibly high-risk experimentation with innovative financial models involving educational purchasers and providers, 'consumers' and producers.

Notes

European Schoolnet

Just Connect

European Schoolnet

Rue de Trèves, 61
B-1000 Brussels
Telephone: +32 (0)2 790 7575
Fax: +32 (0)2 790 7585
E-mail: office@eun.org
Website: http://www.eun.org

Copyright©European Schoolnet, John Rolin

sponsors of the conference

IBM