

Education and Culture DG

Lifelong Learning Programme



Egalement disponible en français sous le titre: *"Améliorer et encourager l'utilisation pédagogique des TIC dans l'éducation – Forum eLearning européen pour l'éducation 2"*

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Preamble

ELFE 2 is the latest ETUCE project on the use of ICT in education – a topic we have always given priority to. We organised various activities such as round tables, seminars and conferences on this subject, initiating the first European eLearning Forum for Education (ELFE) in 2004. The first project having been a success ETUCE launched ELFE 2, where we developed policy recommendations on the use of ICT in education for teachers, teacher unions, school management and the European Commission. The implementation of the ETUCE policy on eLearning and the use of ICT in education feature therefore among the primary issues of the ETUCE Action Programme 2010 – 2013.

The second ELFE project was developed for a better understanding of the strengths and weaknesses of using ICT in education. Its purpose has been to examine the methodologies applied in schools and teacher education institutions that favour pedagogical use of ICT in schools and provide added value in teaching and learning models. The policy recommendations developed concentrated on the main areas of interest identified in the first ELFE project: ICT and teacher education, ICT and school management, ICT and strategic use of available financial means.

With these recommendations ETUCE offers its member organisations and other stakeholders involved in education a work base on which to develop and foster teachers' digital competences. The European Commission strongly emphasises these 21st century competences in a world where creativity and innovation are essential and ETUCE wishes to promote these skills and to further explore how the use of ICT helps teachers to develop lifelong learning skills.

ICT in education therefore continues to be a topic of high importance for the ETUCE and I expect that the results of the ELFE 2 project will be used to support further policy development and feed into a new project in this area.

Brussels,

1 December 2009



Martin Rømer

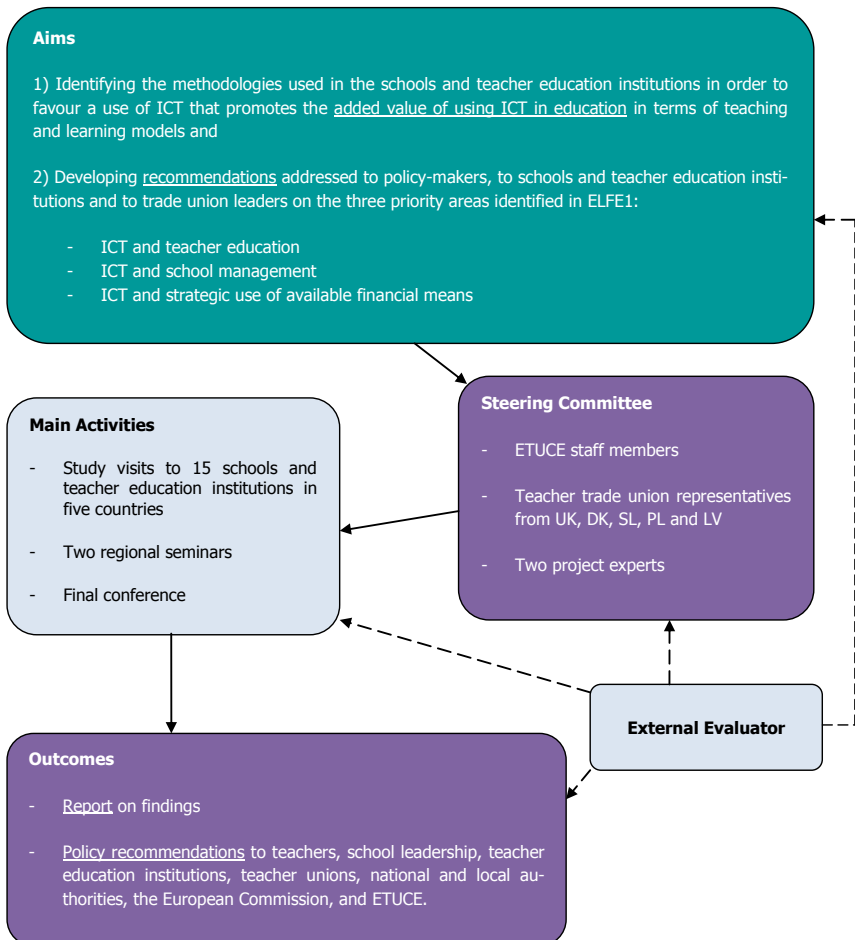
ETUCE General Secretary

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1. Project Scope, Purpose and Structure

The previous ETUCE project concerning ICT in education - European eLearning Forum for Education (ELFE1) (2004-2005) - concluded, among other things, that specific pedagogical and organisational factors in schools as well as teachers' professional support contribute to obtain added value of using ICT in education. This brochure reports on the results of the second ETUCE project on ICT in education - European eLearning Forum for Education 2 (ELFE2) (2008-2009) - which builds on the ELFE1 findings, and has been structured as visualised in the figure below.



ELFE2 Scope and purpose

Five countries were selected to participate in the project: United Kingdom, Denmark, Slovenia, Poland, and Latvia. Study visits were conducted in all of these countries, and a teacher

The research carried out sought to identify methodologies used to favour a use of ICT that promotes added learning value.

trade union representative from each country participated in the project Steering Committee.

The focus of the research carried out was to identify methodologies applied to favour a use of ICT that promotes added learning value. The result is an increased understanding of the strengths and weaknesses of using ICT in education.

An important addition to the ELFE2 project, compared to ELFE1, was to include teacher education institutions (TEIs), and the training of teachers concerning ICT use, in the scope of the project and the study visits. By including these institutions in the project alongside the studied schools, it was possible to study how well teachers are prepared to use ICT, and how this preparation affected their teaching practice.

On a more practical level the ELFE2 project sought to provide national teacher trade unions with information on the current situation in schools and teacher education institutions, and at the same time to develop recommendations to policy-makers, schools, teacher education institutions, and trade unions on: ICT and teacher education; ICT and school management; and ICT and strategic use of available financial means. The project objective therefore was to link policy to practice and thereby support evidence-based policy-making.

The ELFE2 Steering Committee

The ELFE2 project was implemented by a Steering Committee consisting of ETUCE staff members, two experts in the field of ICT and education (Ulf Fredriksson, Mid Sweden University, and Elżbieta Gajek, University of Warsaw), and five teacher trade union representatives from each of the participating countries (**Denmark**: Hans Laugesen, GL (Project Coordinator); **United Kingdom**: Karen Robinson, NUT; **Poland**: Dorota Obidniak, ZNP; **Slovenia**: Andreja Vehovec, ESTUS; **Latvia**: Ilze Trapenciere, LIZDA).

The Steering Committee was the decision-making body of the ELFE2 project and was in charge of guiding the project implementation and monitoring that the project objectives were achieved. The Steering Committee met regularly during the project.

Evaluation

Both internal and external evaluation was used to monitor and evaluate the ELFE2 project and its results and outputs. Internal evaluation reports were written by the Steering Committee itself throughout the project. Furthermore an External Evaluator (Gunilla Jedeskog, Department for Behavioural Sciences and Learning (IBL) Linköping University, Sweden) followed the implementation process closely and evaluated the methodology, processes and outputs of the project, in relation to the project aims. Both the internal evaluation reports and the report of the External Evaluator are available on the ELFE website (www.elfe-eu.net).

2. Project activities

The main activities in the ELFE2 project consisted of 15 study visits, two regional seminars and a closing conference.

Study visits

Within the context of the ELFE2 project **15 study visits to schools and teacher education institutions** were carried out. In each of the five participating countries two schools and one teacher education institution were visited, within a time frame of three days per country. The purpose of the study visits was to gather information on the schools' and institutions' methodologies, and to assess the impact of ICT use on teaching and learning. The schools and institutions were selected according to a number of criteria, described in more detail in section three of this brochure (Methodology).

Each school or institution was visited by a team composed of three to five Steering Committee members, including the union representative from the host country, and including always members from both Eastern and Western Europe. All study visits resulted in a report



describing the findings of the visit. These reports were the basis for the conclusions of the project as a whole. All school reports are available on the ELFE website.



Regional seminars



After the study visits were carried out, two regional seminars took place - one for the Western European countries (Brussels, 19-20 January 2009), and one for Central and Eastern European countries¹ (Riga, 12-13 March 2009). Mainly teacher union representatives participated, however representatives from schools and teacher education institutions were also invited.

The seminars featured presentations on the data collected through the ELFE2 study visits, and schools and teacher education institutions had the opportunity to present good practices on ICT use in education. The participants were invited to debate the draft conclusions made from the study visits and **examine the transferability** of the methodologies identified through the study visits to other countries.

Final conference

The ELFE2 project was concluded with a final conference in Bled, Slovenia on 14-15 September 2009. This conference gathered participants from teacher trade unions in all of Europe and again included representatives from the studied schools that presented their experiences with using ICT in education.



¹ The contents of the two regional seminars are fully reported on in the two reports: "Regional Seminar - European eLearning Forum for Education 2 (Bruxelles)" and "Regional Seminar - ELFE2 (Riga)", both available for download from the ETUCE homepage (www.csee-etuice.org).

The main goals of the conference were to present the results of the research phase and activities to participants, and to receive their reactions and input on the policy recommendations on the use of ICT in education, which were drafted as a result of the project. This input helped to **validate the policy recommendations** in terms of their applicability to different national contexts.²



3. Methodology

The ELFE2 project was based on a case study approach, and importance was given to including various stakeholders at each school or teacher education institution during the study visits. Data was collected through interviews, focus groups and questionnaires, from the principal, teachers, students and the ICT coordinator at each school or teacher education institution. The research instruments were the same for all schools, and some minor changes were made to adapt the instruments to teacher education institutions. Furthermore extensive background information on each school or teacher education institution was collected concerning:

- background (school/ teacher education institution type, location, size, characteristics of student population),
- ICT infrastructure (hardware, software, support)
- pedagogical and organisational aspects of the intensive use of ICT in the school or teacher education institution

The selection of which schools and teacher education institutions to study was made according to the criteria³ shown in the table on the following page.

² The contents of the ELFE2 Final Conference is fully reported in the report: "Closing Conference of the European eLearning Forum for Education 2 (ELFE 2)", available for download from the ETUCE homepage (www.csee-etu.org).

³ For a more elaborate explanation of the selection criteria and process, please see the report "Final report from the ELFE2 study visits in Denmark, Latvia, Poland, Slovenia, UK: analysis of practices and experiences in schools and Teacher Education Institutions" available for download from the ELFE website (www.elfe.eu.net)

	Schools	Teacher Education Institutions (TEIs)
General Criteria	Should be secondary schools (Both upper and lower)	Should be providing pre-service education for teachers
	The steering committee should be able to visit the schools together with the TEI within the number of days allocated in the budget for the visit to each country	
Supplementary Criteria	The use of ICT in the schools should be aimed at pedagogical methods (e.g. student centred pedagogy) and/or addressing new curricular goals (e.g. goals related to developing lifelong learning skills)	The use of ICT should be aimed at teaching the teacher students knowledge about pedagogical methods (e.g. student centred pedagogy) and/or addressing new curricular goals (e.g. goals related to developing lifelong learning skills)
	ICT should be intensively used in teaching and learning processes in the school/TEI as a whole	
	The schools/TEIs should be regarded as advanced in respect of ICT use in their countries	
	Schools should be as “normal” as possible - not receiving extra budgets	

Since the ELFE2 approach was a case study approach and the number of cases was limited to 15, it is not possible to generalise the ELFE2 conclusions to cover all schools in the selected countries or in Europe as such. However the selection of schools and teacher education institutions that are regarded as advanced in respect of ICT use in their country makes it possible to see some of the developments, opportunities and challenges that other schools might face in the years to come.

4. Findings

Below, the most important findings of the ELFE2 project are summarised - please find the full report on the ELFE2 findings on the ELFE website.⁴

Methodologies used in schools

The available ICT infrastructure in schools and teacher education institutions is a decisive factor in terms of which ICT-based methodologies can be implemented. This infrastructure

⁴ “Final report from the ELFE2 study visits in Denmark, Latvia, Poland, Slovenia, UK: analysis of practices and experiences in schools and Teacher Education Institutions” available for download from the ELFE website (www.elfe-eu.net)

consists of both the **hardware and software available**. The ELFE2 project found that some of the schools visited used interactive boards to aid presentations, and that several of the schools used modern computer equipment to facilitate experiments in natural science classes. Video and sound editing and video recording systems were also used in the visited schools.

On the software side, most of the visited schools used PowerPoint presentations to support lectures. Computer programmes and web pages were used to provide concrete visualisation of different topics. Most schools also used the internet as an important source of information. The approaches on this matter varied between the schools - spanning from cross-curricula group work to the encouragement of students to look for information as part of their homework.

Internet, e-mail and different learning platforms (e.g. Moodle, Fronter and Skoleintra) were widely used in the studied schools to **facilitate communication** between teachers, students and head teachers. Web pages and platforms were used by the



Study visit to Maribor Grammar School II, Slovenia by Steering Group Members Ulf Fredriksson, Hans Laugesen, Gunila Jedeskog, Ilze Trapenclere, and Andreja Mihovec.

schools to post general information about the school to an audience outside the school, and also to disseminate information to teachers and students and to create archives with information. Many of the schools studied had established contacts with other schools, often abroad. ICT was also used in extra-curricular activities.

Factors supporting or hindering the use of ICT oriented methodologies

The teachers and students interviewed during the study visits mostly had a positive view of the methodologies mentioned above. On the whole the picture of ICT use in the visited schools is more complex though. A number of factors can be seen as either supporting or hindering the use of ICT oriented methodologies.

None of the visited schools experienced their ICT infrastructure as a problem, and were generally satisfied with the **software and hardware available** to them. This seems to be

an important supportive factor for the use of ICT in teaching and learning. The ICT infrastructure available to students in their homes varied. In some of the schools it was assumed that the students had access to computers at home, and others were aware that many students did not have computer access outside the school. Different initiatives to provide computer access to these students were taken. However the schools did not consider students'

In most of the schools visited there was no common school vision concerning ICT use and development

access to computers in their homes to be influential of their educational achievements.

Another factor that can support the use of ICT oriented methodologies in schools is **a shared vision of the use of ICT** in the school. In most of the schools visited there was no common school vision - discussed and decided upon in local dialogue - concerning ICT use and development. The steering group mostly encountered individual visions of the use of ICT, and in some places national plans on ICT use had been implemented and integrated into organisational structures.

In order to allow room for innovation concerning pedagogical use of ICT, it is important that teachers are allowed **a margin for trial and error**. Schools must allow room for teachers to discuss both successes and failures and learn from these. Furthermore it was found that the existence of a **link between academic research and teaching practice** enhances progress in the use of ICT in education.

The use of **in-service training and education** on the technical and pedagogical use of ICT varied between the schools in terms of its form and regularity. It was found that the interviewed teachers had to a great extent learnt using ICT through trial and error processes and from their colleagues.

Yet another finding was that the **approach of teachers** to using ICT played a role. The teachers that the steering committee met during the study visits can be divided into three groups. Some teachers were enthusiastic and confident about ICT use in their teaching practice, other teachers were placed in an ICT rich learning environment and gradually adjusted to it. The third group (which did not exist in all schools) consists of teachers who had not integrated ICT into their teaching at all.

Gender differences between students concerning ICT were often mentioned, but there were no examples of schools dealing with these differences

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boys were regarded as being better and more interested than girls in the use of ICT. Ethnicity was not considered an issue of concern relating to ICT use.

ICT and teacher education

The ELFE2 project included teacher education institutions in order to understand the level of ICT knowledge new teachers bring with them when they start their professional careers. In general the steering committee found that the use of ICT in teacher education institutions was quite similar to the use of ICT in the visited schools. Also the methodologies identified in schools were used in the teacher education institutions. However **more internal variation within the institutions was found than in schools**. A large group of teacher educators were enthusiastically using ICT as a tool for their own teaching as well as a model of how teacher students could use ICT in their future practice. At the same time there was also a large group of teacher educators who entirely refused to use ICT.

The institutions visited also varied in terms of their ties to educational research. In this context the steering group found that the closer the **cooperation between educational research and the school practitioners** the more advanced and intensive teacher education in ICT-based instruction took place.

In many of the visited schools young teachers were perceived as more willing than older teachers to implement ICT-based methodologies. However opinions were also expressed that teachers who had been using ICT for many years and constantly upgraded their skills were more experienced.

The students interviewed at the teacher education institutions were generally confident of their

It is very important for teacher students to experience practical use of ICT in teaching and learning in schools

ICT skills. It can however be discussed to which extent this confidence was related to both the technical and pedagogical aspects of using ICT in teaching and learning. In relation to this it was found to be very **important for the students to experience practical use of**

ICT in teaching and learning in schools. The students do however not necessarily encounter this during their practical training in schools, as not all schools receiving teacher students have an advanced practice of using ICT.

ICT and strategic use of financial means

In the visited schools **both public and private financial means** were used to provide hardware, and as stated before, the schools were satisfied with their ICT infrastructure. The budget needs identified at the schools were more in the line of funds for maintenance of the infrastructure, funds for technical support, and funds for teachers' professional development on ICT. Most of the visited schools had in fact received some type of additional funds apart from state funding. These additional funds seemed to be more easily used for investments in hardware as opposed to e.g. organising teachers' professional development. The situation concerning technical support staff varied among schools - some were able to employ specialists for the purpose, and others had teachers or temporarily employed university students stepping in to fulfil the task.

ICT and school management

In all schools visited, **school management had played a role** in the school's development in terms of ICT. Either they had been directly pushing for a more advanced use of ICT or supporting groups of teachers who were pushing for this. Head teachers were also active when it came to looking for additional funds for ICT activities.

Many of the visited schools were not only active concerning the use of ICT - ICT seemed to be only one among many innovative activities the schools involve themselves in. The steering group observed that **school management in these schools seemed to be open and interested** in discovering new ways of teaching and learning in general.

As mentioned, few of the schools had worked with a common vision of ICT use. Some of the head teachers interviewed acknowledged this as an important step forward, and others did not seem to consider it an issue.

Furthermore ICT was extensively used for the management and administration of the schools - in some cases reducing the administrative workload of teachers.

Ethics of ICT-based instruction

An intensive use of ICT in teaching and learning processes confronts schools with new ethical challenges. The visited schools were all aware of the obligation to respect **intellectual property rights** and treated copying from the internet as a form of cheating.

Attention was also paid to the safety of students on the internet and schools taught “**netiquette**” and **basic safety rules** to students. However not all students interviewed seemed aware of how to approach information available on the internet in a critical manner. The professional conduct and image of teachers on the internet was also raised as an issue.

In some schools gaps between the ICT skills and knowledge of students and teachers were brought up. Teachers found this gap to be a motivation for professional development in the field.

Stages of development in the use of ICT in schools

Researchers have identified three different stages in the development of the use of ICT in schools⁵:

Stages in the development of the use of ICT in schools	
1	Teachers use computers to support traditional methods of teaching, such as drill-and-practice, text orientation, whole group lectures and seatwork.
2	Teachers gain confidence and use technology as part of more innovative instruction, including, team teaching, interdisciplinary project based instruction, and individually paced instruction.
3	Teachers enter an inventive stage in which they experiment and change the use of technology to support active, creative and collaborative learning.

In most of the schools studied in the ELFE2 project the teaching practices were, at the time of the study visit, shifting from a “stage 1 use” towards a “stage 2 use” of ICT. That is to say that they were in a process of change from the use of ICT as a support to traditional teaching methods, to a more innovative use of ICT. This more innovative use includes ap-

⁵ Plomp, Tj., Brummelhuis, A. Ten & R. Rapmund (Eds.) (1996). *Teaching and learning for the future. Advisory Report prepared by the Committee on MultiMedia In Teacher Training (COMMITT)*. The Hague: Sdu DOP.

plying new technologies to discover new ways of teaching and learning. Some of the schools examined showed signs of moving to the 3rd stage.

Transferability and sustainability

A last issue of importance is whether or not the experiences gained in the ELFE2 schools are transferable to other schools, and whether or not the development in the schools is sustainable - that is to which extent the studied schools will be able to continue and develop their work further.

In this matter **financial resources** are important. First of all investment in a sufficient number of computers is necessary. Without the necessary infrastructure, it is difficult to integrate the use of ICT into everyday practice in a school. It can be doubtful whether schools that only receive regular state funding will have sufficient means to make these investments.

Very closely connected with this issue, is the question of the **sustainability of the additional funding** obtained from projects or sponsors in many of the studied schools. It is necessary for schools to consider how to use such funds in a sustainable way, and to be aware of adjusting planning to the availability over time of these additional funds.

A matter that seems both sustainable and transferable to other schools is however the positive attitude towards change and innovative practices that was observed in the schools and institutions visited. Furthermore schools with an advanced use of ICT and schools that are

less advanced in the matter can benefit from a bi-directional exchange concerning teaching practices.

The positive attitude towards change and innovative practices that was observed in the ELFE2 schools and institutions can be sustained and transferred to other schools and institutions

5. Key Policy Recommendations

An important outcome of the ELFE2 project was the development of the policy recommendations that follow below. The recommendations are based on the project findings, and were validated through discussions with teacher trade union representatives at the ELFE2 final conference.

All partners responsible for schools should consider supporting the development of a pedagogical climate in school, especially where there is a positive attitude to innovation, quality and cooperation in pedagogical practice; activation of all students in the learning process, dissemination of good practices and experiences within the school as well as a culture of evaluation. Education and training serve a broader purpose than answering specific labour market demands. The primary objective of the European education and training systems is not to meet the specific needs of the labour market but to educate for life. To reach this overall objective requires education and training systems accessible to all and acting for the development of peoples' knowledge, skills and abilities in a broad range of subjects, social, civic and cultural competences, the ability to learn as well as creativity, innovation and teamwork skills.

The following recommendations are based on the observations made at school level and the objectives of the European 21st century competences. They address separate target groups: teachers, school leadership, teacher education institutions, teacher unions, the European Commission and ETUCE. However, as all these stakeholders are linked to each other in their responsibilities in the education sector, the recommendations presented here are also mutually connected. They should all be considered and read comprehensively, bearing in mind that a malfunction in the implementation of one group could hinder the implementation of the whole set of recommendations.

The recommendations are to be understood as a reference point to which the stakeholders are invited to follow where applicable and appropriate and according to their competences and financial means, taking into account the cultural and educational differences of each country. Two general topics which all parties should consider, are a call for a greater focus on training 21st century skills and the need for teachers to develop better pedagogical knowledge on how to use ICT in education for the benefit of learners.

Given the relevant hardware and software and given the appropriate support **teachers should give consideration to**

- **reflect on pedagogical changes** to experience new teaching tools in collaboration with colleagues and pupils and to learn about ICT practices by hands-on experience
 - bear in mind the time and the margin for innovation **trial and error** they need to assess new pedagogical practices
 - reflect on applying **blended learning** to combine traditional teaching with ICT, using it where it is relevant and where it can support the students in learning the required competences.
 - **add ICT-based visual and emotional stimuli** to the learning process
 - ensure they **engage all students** in the line of ICT for education, regardless of gender and students' cultural background
-
- reflect on how ICT can be used to create contacts with parents or between classes at different schools and in different countries
 - encourage cooperation between teachers and students in the development of innovation
 - participate in activities for professional development and teacher networks, following innovative developments in specialist subject field(s) and learn how to use the necessary technical equipment
 - collect information on opportunities for involvement in initiatives concerning ICT in education on the local, national and European level concerning ICT in education

School leadership should give consideration to

- **discuss** and develop with teachers their school's targets concerning **ICT in Education policies** and ensure that this policy is reflected in the school's budget
 - **encourage a variety of techniques** and methods of active learning
 - bear in mind that developing new pedagogical practices requires **time for teachers to plan and reflect**
 - implement changes as a stable element in education and promote a culture where **mistakes can be learnt from**
 - offer teachers the relevant **in-service training** in the pedagogical use of ICT and support **teacher cooperation** and exchange of experience both at school level and between schools
-
- provide the necessary technical support for teachers and learners. If teachers have access to a personal computer and the internet when preparing their lessons, it is very likely their pedagogical practice will change.
 - fully inform their staff about the conditions related to private sponsoring, and ensure teachers keep the full right to decide all pedagogical matters on how to use the sponsored equipment.
 - monitor any bias on the use of ICT related to gender, race, religion or belief, disability or age
 - establish an in-school quality evaluation structure and require critical evaluation of innovative approaches and co-operate in the establishment of a standard evaluation structure with teachers, teacher education institutions and national and local authorities
 - establish contacts with other schools in Europe for an exchange of good practices on using ICT in education and promote the involvement of their school in the various EU level initiatives for school-to-school cooperation, such as eTwinning, Comenius, etc.
 - promote and facilitate the involvement of school teachers in the various EU programmes for exchange and study visits abroad
 - provide information about their school's good practices on the pedagogical use of ICT in education for national/local authorities, teacher unions etc.

Teacher education institutions should give consideration to

- **integrate** training in the pedagogical use of ICT in all relevant teacher education programmes and train teacher students on the use of ICT in education via internships at schools that use ICT regularly in education
 - establish **partnerships** between teacher education institutions and **schools** to support a dialogue on the training and development needed to strengthen the pedagogical use of ICT.
 - encourage a **variety of techniques** and methods of active learning for different subjects
 - set **high ethical standards** for teaching how to use ICT in education
 - focus more on **research** in the pedagogical use of ICT and how integrated use of ICT can support the learning process in the individual subjects.
-
- reflect on developing research projects together with schools so teachers at school level participate in the projects
 - give teacher students the possibility to train and experience ICT in education during their practical training to support the exchange of latest research ideas and practical application at school level
 - provide information on the various EU level initiatives for school-to-school cooperation, such as eTwinning, Comenius, etc. for their students
 - promote the involvement of teacher students in the various EU programmes for exchange and study visits abroad
 - cooperate with national and local authorities to establish further training possibilities on ICT in education
 - establish a standard evaluation structure together with teachers and national and local authorities on the use of ICT in education for the assessment of teachers and pupils alike

Teacher unions should give consideration to

- **promote** teachers' engagement in the relevant use of ICT in education
 - monitor **teachers' workload** including out-of-school contact with students and ensure that teachers are not expected to be available 24 hours a day
 - identify teachers needs in terms of ICT-based instruction and promote **long-term continuous in-service training** by providing training opportunities
 - promote the **exchange of experience** between teachers both at school level and between schools
 - call for authorities to allocate the necessary **funds** for the use of ICT in education – funds for equipment, for support, for professional development and time for teachers to develop their teaching
-
- support teachers and schools who want to promote ICT in education, e.g. provide contacts to experts, funding possibilities
 - include ICT in education in union policies
 - work on disseminating existing tools and resources that closely relate to their affiliates daily needs and build networks for action research in teacher development
 - negotiate the balance between protecting intellectual properties and making relevant material available
 - reflect on how unions can support the need for more research concerning the use of ICT in education, e.g. by initiating their own research projects involving union members
 - call for and seek to influence the establishment of an evaluation structure together with teachers and national and local authorities on the use of ICT in education for the assessment of teachers and pupils alike
 - develop school evaluation criteria for innovative activities, e.g. create an award for "most innovative school"
 - cooperate with other European teacher unions to exchange good practices on implanting and fostering the use of ICT in education
 - provide information on the various EU level initiatives for school-to-school cooperation, such as eTwinning, Comenius, etc. for their students

National and local authorities should give consideration to

- ensure that the political vision and expectation for using ICT at school corresponds to the learning requirements in the **curriculum** and in each subject
 - allocate the necessary **funds to implement the political goals** set up for the use of ICT in schools. This should include funds for both equipment and the professional development of teachers.
 - provide an **ICT infrastructure** for education and ensure its maintenance
 - provide funds for educational **research** on innovative initiatives to identify pros and cons
 - provide funds for **pilot projects** on the pedagogical use of ICT in education in co-operation with research institutes, schools and teacher education institutions
-
- provide policies for blended and distance education including when it may be used, and on which terms for students and teachers
 - include teacher unions as partners in the establishment of ICT policies in education
 - provide policies for implementing both egalitarian and diverse visions of education
 - strengthen the focus on the pedagogical use of ICT in teacher education ensure that formal assessments and examinations are organised to respect the teaching method and measure the same competences as those used at school
 - develop school evaluation criteria for innovative activities that take into account a margin for error
 - include in their national lifelong learning strategies a coherent set of objectives linked to digital competences as defined by the European reference Framework of Key Competences for Lifelong Learning
 - support teachers and schools who want to promote ICT in education, e.g. provide contacts to experts, funding possibilities, implementation guides
 - exchange good practices with other (European) national and local authorities on the implementation of ICT in education
 - build a system of dissemination of good practice among teachers, as this will help to increase common professional knowledge and experience in the pedagogical use of ICT
 - promote the involvement of school teachers in the various EU programmes for exchange and study visits abroad

- provide information on the various EU level initiatives for school-to-school cooperation, such as eTwinning, Comenius, etc. for their students

The European Commission should give consideration to

- **support** member countries in their efforts to provide teachers with adequate **training** in the use of ICT
 - support member countries in providing internet **access** for all schools
 - continue to support **information exchange** between schools, exchanges for teachers and pupils
 - support initiatives in school and **research** that aim at broadening teachers' knowledge on the pedagogical use of ICT in education
 - **influence** the continuous development of **international surveys** like TIMSS and PISA so the evaluation of 21st century skills become more visible in the published results
-
- support the establishment of partnerships and networks between schools in different countries, in particular concerning ICT in education
 - launch research projects on ICT in education where teacher education institutions and schools/teachers cooperate on the development of the pedagogical use of ICT
 - disseminate European schools' good practices on the pedagogical use of ICT in education to all European national authorities
 - promote the development of school evaluation criteria for innovative activities e.g. create an award for "most innovative school"
 - distribute the information on EU level initiatives for school-to-school cooperation, such as eTwinning, Comenius, etc. to national authorities

ETUCE should give consideration to

- **promote** these recommendations in dialogue with the member unions and in the European institutions.
 - apply for a **follow-up project** focusing on pre-service and in-service training on the use of ICT in education
 - **monitor the development** of the pedagogical use of ICT and biannually arrange seminars on this topic
 - encourage a variety of techniques and methods of active learning by promoting **knowledge exchange** and the exchange of good practices of schools/teachers using ICT in education
 - support the establishment of **networks** between teacher unions in different countries, in particular concerning ICT in education
-
- take the necessary initiatives to support member unions in their efforts to provide all teachers and educational personnel with adequate training in the use of ICT
 - disseminate the results of the exchange of good practices of its member unions concerning ICT in education exchange good practice with other European unions on the implementation of ICT in other sectors
 - promote the importance of supporting ICT in education at European level
 - provide information on the various EU level initiatives for school-to-school cooperation, such as eTwinning, Comenius, etc.

6. Participating Schools and Teacher Education Institutions

Country	School/Institution	Contact
United Kingdom	Morpeth School (London)	http://morpethschool.org.uk/
	Stepney Green Maths & Computing College (London)	http://www.stepneygreen.towerhamlets.sch.uk/
	Institute of Education (University of London)	http://ioewebserver.ioe.ac.uk/ioe/index.html
Denmark	Grantofteskolen (Ballerup, Denmark)	www.grantofteskolen.dk
	Ørestad gymnasium (Copenhagen, Denmark)	http://www.oerestadgym.dk/
	N. Zahle Seminarium a section of Professionshøjskolen i København, Copenhagen, Denmark (University College Copenhagen)	http://www.ucc.dk and www.nzs.dk
Latvia	Ogre Gymnasium (Ogre, Latvia)	http://www.gimnazija.ogre.lv/lv/index.php?new
	Auce Secondary School (Auce, Latvia)	http://local.auce.lv
	Riga Teacher Training and Education Management Academy (Riga, Latvia)	http://www.rpviva.lv/
Poland	XXVII Upper secondary school of Tadeusz Czacki (in Warsaw)	http://strona.czacki.kei.pl/
	Gymnasium in Rogów.	http://www.gimrogow.cal.pl/ and see http://www.trass59.dk/Etwinning/etwinning-index.html on schools' eTwinning project
	Computer Assisted Education and Information Technology Centre (OEIIZK) (in Warsaw)	http://www.oeiizk.waw.pl
Slovenia	The secondary School of Electrical and Computer Engineering (in Ljubljana)	http://www.vegova.si/
	Maribor Grammar School II (in Maribor)	http://www.druga.org/
	The Faculty of Education (in Ljubljana)	http://www.pef.uni-lj.si/

7. Acronyms

ELFE	European eLearning Forum for Education
ESTUS	Education and Science Trade Union of Slovenia
ETUCE	European Trade Union Committee for Education
EU	European Union
GL	Gymnasieskolernes Lærereforening (The Danish National Union of Upper Secondary School Teachers)
ICT	Information and Communication Technology
LIZDA	Latvian Education and Science Employees' Trade Union
NUT	National Union of Teachers (United Kingdom)
TEI	Teacher Education Institution
ZNP	Związek Nauczycielstwa Polskiego (Polish Teachers Union)

8. ELFE2 Publications and Reports

School Reports

- 15 reports from study visits to schools and teacher education institutions

Conference and Seminar Reports

- Regional Seminar - European eLearning Forum for Education 2 (Brussels)
- Regional Seminar - ELFE2 (Riga)
- Closing Conference of the ETUCE project - European eLearning Forum for Education (ELFE2)

Findings and Policy Recommendations

- Final report from the ELFE2 study visits in Denmark, Latvia, Poland, Slovenia, UK: analysis of practices and experiences in schools and Teacher Education Institutions
- Final Policy Paper ELFE2 Policy Recommendations

Evaluation

- ELFE2 – European eLearning forum for Education 2 - External Evaluator's report
- Three internal evaluation reports

All reports and publications are available for download from the ELFE website:

www.elfe-eu.net

www.  -eu.net



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