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Final Policy Paper

ELFE 2 Policy Recommendations

Contents

The ELFE 2 Policy Recommendations

The European eLearning Forum for Education (ELFE2) has been created to achieve a better understanding of the strengths and the weaknesses of using ICT in education, and to look at conditions at school level and in teacher education that favours the pedagogical use of ICT in schools. Based on previous pilot projects which included intensive use of ICT in secondary schools and in teacher education institutions the ELFE 2 project - carried out in five different European countries (Denmark, UK, Latvia, Poland and Slovenia) - tried to:

1. Identify methodologies used in schools and teacher education institutions in order to favour a use of ICT that promotes the added value of using ICT in education in terms of teaching and learning models (by building on the ELFE 1 findings).
2. Develop recommendations addressed to policy-makers, to schools and teacher education institutions and to trade union leaders on the three priority areas identified in ELFE 1 (ICT and teacher education, ICT and school management, ICT and strategic use of available financial means).

ETUCE's ICT in Education policy in 2006

The ELFE1 project was conducted from 2004 to 2005 and looks at good pedagogical examples on the use of ICT in education in Denmark, Norway, England, Germany, and Portugal. The final report of the ELFE1 project discussed the use of ICT in education and concluded that "[t]here are good reasons for schools to provide an education in which computers and the use of ICT are integrated. The crucial issue is how to do this." Based on the findings in ELFE1 a draft policy paper on the use of ICT in education was discussed at the final ELFE1 conference in autumn 2005. 70 union representatives from 22 countries discussed the use of ICT in education. Topics like – do schools need ICT, which risks and opportunities are involved when using ICT, and what do we need to do to solve existing problems and to reduce or avoid future obstacles.

Based on the debate at the conference the recommendations from the ELFE1 project were adopted first by the ETUCE executive board in December 2005 and later adopted by the ETUCE General Assembly in December 2006.

Comparing the situation at schools today with the situation the Project Advisory Group met during the ELFE1 school visits in 2004 and 2005, there have been many changes. In general, schools are better equipped with computers and in increased number of schools high speed internet connections and a school network are available. Some schools have wireless internet available for teachers and students, and in some countries interactive whiteboards are being installed in all class rooms.

However, the ELFE project does not focus on technical equipment. It rather examines the pedagogical use of ICT in education. In this respect it is surprising that the pedagogical use of ICT has developed at a much slower speed.

Many of the recommendations in ETUCE's ICT in Education policy paper are relevant, and need to be discussed. These recommendations are supposed to be a source for inspiration for the development both in school level and in teachers unions and will hopefully be discussed by school authori-

ties and international organisations involved in education. To change the way ICT is used pedagogically in the learning process by schools new recommendations can be added, as suggested below.

Differences between ELFE 2 and ELFE1

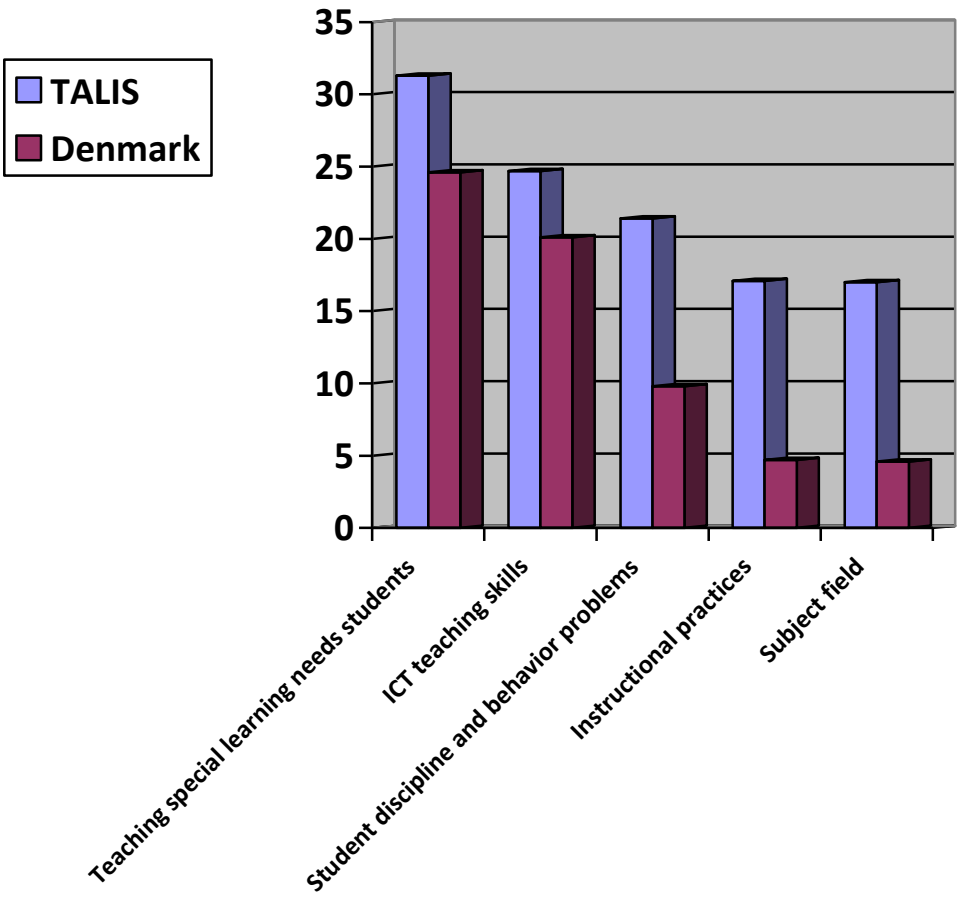
In ELFE2 we included three new EU member states in the project – Latvia, Poland and Slovenia – to find out about the mutual influence the countries have as regards good pedagogical use of ICT in education. In many schools in the new EU member countries the attitude towards the use of ICT is expressed in the sentence: "ICT is not a goal in itself – it's just a tool." The same attitude can be found in many Western European schools. From a pedagogical perspective this is a rather restrictive attitude. If you only use a computer to make Power Point presentations and as a typewriter or calculator when recording notes or measurements in laboratory exercises, teaching methods do not change. Moreover, the effect of ICT on the student's learning process is limited.

In addition the ELFE2 project has focused on how initial teacher education and in-service training has qualified teachers for good pedagogical use of ICT in education. It is surprising, that there is so little focus on the pedagogical use of ICT in initial teacher education. Good examples for teacher training are mostly found in pedagogical in-service training. ELFE1 saw some very positive results of the Pedagogical ICT driver license offered to most teachers in Denmark and introduced in several other European countries. The centres for ICT teacher training visited in London and in Warsaw during the ELFE2 also showed some very inspiring work.

Looking at initial teacher education it is surprising that several teacher education institutions lack the vision for pedagogical use of ICT in several subjects. In the case of mathematics for example, if you have not used ICT as a pedagogical tool in that subject it is easy to conclude that mathematics is best learned standing at the blackboard with combined physical and mental exercise of writing the equations and logical reasoning on the blackboard. In ELFE schools we have seen however some inspiring pedagogical use of ICT in mathematics. The class works with programmes where students can change the values in the integration formulas and change the graphic display of the formula making it much easier to understand complex mathematical problems. This example shows how ICT can be successfully integrated in teaching. Moreover, it sets an example for the future development of teacher education.
Regarding education in pedagogical use of ICT it is worth to note that this kind of training is mentioned by teachers in the OECD TALIS[1] 2008 survey as number two from the top among most wanted training areas.

It is interesting that the demand for training in ICT teaching skills is number two even in Denmark, a country where more than 80% of the teachers have attained the pedagogical ICT driver license:

[1] OECD's Teaching and Learning International Survey ("Teacher survey") published on 16 June 2009 provided the first internationally comparable data on conditions affecting teachers in schools based on the findings of the OECD's survey in 23 participating countries



Source: OECD's TALIS 2008, Table 3.4: Teachers' high professional development needs (2007-08). Percentage of teachers of lower secondary education indicating they have a 'High level of need' for professional development in the following areas and overall index of need. (Here in extract showing most wanted categories).

ELFE2 policy recommendations

Importance of 21st century competences

21st century competences are defined here as the competence to look for and collect relevant information, to be critical, to work independently, and at the same time be able to work together with others. Within the last decade there has been increasing focus on training for these competences to meet the challenges of the society of tomorrow and to help develop a knowledge society where innovation and creativity are important competences, too.

In 2006 the European Parliament and the Council adopted a recommendation concerning eight key competences for Lifelong Learning. The competences are defined as a combination of knowledge, skills and attitudes appropriate to the context. Several of the key competences are relevant in relation to the use of ICT and one of them is digital competence[2]. The paper defines digital competence

[2] The 8 key competencies in the EU recommendation from Dec. 2006 are: 1. Communication in the mother tongue, 2. Communication in foreign languages, 3. Mathematical competence and basic competences in science and technology, 4. Digital competence, 5. Learning to learn, 6. Social and civic competences, 7. Sense of initiative and entrepreneurship, and 8. Cultural awareness and expression

as: involving confident and critical use of Information Society Technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet. The recommendation paper elaborates on the essential knowledge, skills and attitudes related to this competence.

The information available on the Internet can be overwhelming for students. Schools have the important role of teaching students how to select and use relevant information and to train them to classify and to become critically aware of the information sources. The students need to learn to use various search engines and Internet dictionaries and to be aware that hits are the result of paid advertisement.

It is important to focus on 21st century competences but this should not be done at the cost of basic skills training in all the subjects included in the school's curriculum. In ELFE1 we saw that the time spent on using ICT in education did increase the students' achievement of 21st century competences without taking time away from and harming the outcome of subject knowledge training. It remains however a pedagogical challenge, that we still have not seen clear examples of pedagogical practice using ICT in education resulting in higher subject knowledge. This is a universal challenge.

The International Handbook of Information Technology in Primary and Secondary Education is a 1200 page global study published in 2008. Findings from the study have been presented at the two regional ELFE2 conferences. The study does not give any proof that ICT in education results in better subject knowledge. It is quite interesting however; that when most of the writers of the Handbook met at the EDUsummIT in The Hague in June 2008 they agreed that education must give priority to train 21st century competencies. Against this background the need for more pedagogical research in this aspect of ICT use becomes evident. Pilot projects should be set up in Europe where teachers try new ways of using ICT in their lessons. This could result in better subject knowledge.

It is important to bear in mind that relevant didactical possibilities vary from subject to subject. There is no sense in requiring that a fixed share of all lessons in all subjects is taught using ICT. ICT can be relevant in all subjects, but it only makes sense if the use of ICT is relevant to improve the learning process. When ICT is used for/with a clear purpose, it becomes easier to inspire students to use ICT in future whenever they meet challenges in specific subject related problems.

However, in order to change teaching in a way that teachers make more use of the possibilities of ICT in education on both subject knowledge and 21st century competences several factors have to be addressed: If it is a national priority that education shall train 21st century competences this priority must be included explicitly in the curriculum – also in the curriculum requirements in every subject. In addition, final exams must reflect the required ICT teaching in school. If final exams and curriculum explicitly require the use of ICT in different relevant aspects daily teaching will change.

Another way of putting higher emphasis on the use of ICT in education would be to change school evaluations and to continue to develop the international surveys like TIMSS[3] and PISA so the evaluation of 21st century skills become more visible in the published results. Where TIMSS focuses more on the curriculum requirements, PISA is developed to look at what students need to

[3] IEA, the International Association for the Evaluation of Educational Achievement, is responsible for two international performance studies: TIMSS, Trends in International Mathematics and Science study and PIRLS, Progress in International Reading Literacy Study.

know in a modern society and their ability to use their knowledge in relation to relevant examples from their life. But in many countries politicians focus more on basic skills in reading, mathematics and science as a result of the PISA survey regardless of the broader scope of the survey. This might change as the next PISA study will include e-reading and use e-tests in assessing natural science subjects.

The importance of learning environment at school level

Besides these formal teaching conditions there are many factors that influence the good use of ICT in education. ELFE has looked into the importance of pedagogical training, technical support, support from school management, and the importance of having a vision for the use of ICT with clear school policy.

This should be developed at school level through talking about new ways of teaching and looking for new ways of effective teaching and learning. It should also include the development of a school culture with room for trial and error, to enable experimentation with pedagogical approaches to take place.

School policy should specify a certain level of ambition. Management and staff should discuss which expectations the students could have towards teachers in regard to their use of ICT in education. The head teacher will need to find resources and provide necessary training for those teachers who need extra support to be able to live up to the expectations in the adopted school policy.

It is important that schools both have technical and pedagogical support for teachers when they plan to use ICT in education. A teacher should get support from both colleagues and trained personnel. S/he should be able to rely on the technical equipment to work when s/he wants to use it in class.

With the increased availability of cheap notebooks and laptops schools face a new problem: the need for power supply for students' computer batteries because most computer batteries do not last long enough for the intensive use of a whole school day. In fact safety measures need to be considered if power lines to computers lie on the floor all over the classroom.

When students are given assignments and are required to make larger project reports at home it is necessary to discuss the possibility of cheating including copying and pasting from another student's report found on the Internet. Teachers should be informed on where students look for other students' reports and should as part of class instruction teach students to respect intellectual copyright and to be aware of the consequences if they are caught cheating. When the teacher follows the students' work progress in a project, it is easier to ensure that the work is their own and not a simple copy from the web.

The question of class discipline while using ICT in education is brought up in most schools. Students in a class where there is Internet access will be tempted to use e-mail and internet besides writing notes and working with their assignments.

There are many ways of dealing with this. Lessons could, for example, therefore be planned to include the options of using computers, but maybe also to tell the student at some point to close down their computers and instead debate questions raised or the assignments given during the lesson.

There is not one correct way to do this. Instead the teacher must master several different ways of planning the lessons depending on the actual subject and depending on the students in the class.

There is good evidence that ICT can be useful to differentiate teaching, taking into consideration the pedagogical need of the individual student.

The physical setting for teaching lessons at school certainly plays an important role. Some schools have only or most computers in computer laboratories. Other schools have computer access in many classrooms and some schools have working areas at the school where students can work with computers on their own or in groups outside the classroom.

The need for funds – and the question of sponsorships

The condition at a newly constructed and well equipped school is not fully transferrable to all other schools because many of them lack resources. It has been characteristic for many of the ELFE2 schools visited in Slovenia, Poland and Latvia, that they have had access to extra resources besides the normal funding for the public schools. The ELFE Steering Committee has debated this problem: Are the good examples from these schools transferable to schools fully dependent on state funding?

It is essential that public funding for the public schools does not only cover all expenditures needed to run the schools but also includes funds to develop the schools so they can qualify the students for the society of tomorrow. When the school authorities set up the priorities for the development of schools they must at the same time allocate the necessary funds to the schools. However there is a time factor and some schools find that the funding they get cannot finance the development at the speed they want.

The issue of external funds and sponsors was brought forward and discussed at the regional seminar in Riga. The conclusion was that good inspiration should not be rejected because it has been motivated by external funding. It might have been easier for these schools to succeed, but when experimenting with new ways of learning teaching there should be room for trial and error. This learning process can benefit from extra resources and in several countries there have been larger pilot projects with extra public funding for finding good use of ICT in education. After a pilot phase these projects have been amended and partly implemented in the national curriculum within normal budget limits.

The development of new ways of teaching does require some extra work and benefits from extra resources to pay for extra preparation, new equipment and time to write a report that can pass on the results to colleagues at school or at other schools.

In countries where resources for larger national pilot projects are not available, an alternative approach for individual schools could be to look for alternative funds and private sponsorships to try out new ways of teaching and to find better ways of using ICT in education. Schools and teachers must be aware of possible national and local regulations and requirements if they consider negotiating with a sponsor. In principle, however, funding for public schools should be sufficient to finance any required development.

If schools do decide to deal with sponsors – and in relation to ICT it is not unknown both in relation to hardware and software – it is important that the schools are aware that they should stay in full control of pedagogical decisions. Sponsors should not be allowed to have any influence on how professional teachers use the equipment or programmes in their teaching. In addition, it is important that there are ways to ask colleagues from other schools about their experiences to learn from both good and bad examples.

At least two further aspects need to be raised before accepting sponsors:
1) Funds made available by a sponsor should be used in such a way that the school will be able to continue its work after that the funding has ended. The money should be seen as complementary to the regular funding and not a part of the regular funding. 2) Schools should not join public relation campaigns organised by the sponsors. Schools should not be part of advertising programmes.

Based on these findings and the debate at the project closing conference in September 2009 the ELFE2 steering committee suggests the following policy recommendations.

Key Recommendations

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.

Teachers should give consideration to

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 in 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 educations 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 ethic 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 cooperation 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

The 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.