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Reader “Digital Education”

Reading materials:

1. “The Changing Pedagogical Landscape”, Publications Office of the European Union, 2014
Download here: <http://bookshop.europa.eu/en/the-changing-pedagogical-landscape-pbNC0415435/>
2. “Higher Education in Digital Era. A Thinking Exercise in Flanders”, Georges Van der Perre, Jan Van Campenhout, 2015.
3. “Open Educational Resources – a Catalyst for Innovation”, Dominic Orr, Michele Rimini, Dirk Van Damme. OECD Publishing Paris, 2015.
Read here: http://www.oecd-ilibrary.org/education/open-educational-resources_9789264247543-en



DRAFT Policy Paper

The 21st Century Teaching Profession and the Use of ICT

*Submitted for Adoption by the ETUCE Committee to the ETUCE Conference, the Regional Conference of
Education International, meeting in Belgrade on 6 - 8 December 2016,*

A Rationale

This policy paper has been developed based on the work of the ETUCE taskforce with a view to implementing the *Resolution on Shaping the Teaching Profession of the 21st Century*, which was adopted at the ETUCE Special Conference in Vienna on 26-27 November 2014.

B Background

Building on the [Resolution on Shaping the Future of the Teaching Profession](#) and the [EI Education Policy Paper](#) amended by the 7th EI Congress in Ottawa in 2015, the [Resolution on the Teaching Profession](#) adopted by the ETUCE Conference in Budapest in 2012, the [ETUCE Policy Paper 'Teacher Education in Europe'](#) and other existing ETUCE policy papers, this document contributes to the [Unite for Quality Education](#) campaign and in particular [The Global Response to Privatisation and Commercialisation in and of Education](#) as it underlines the priorities of universal and free access to quality teachers, modern teaching tools and resources and supportive, safe and secure environments for teaching and learning.

The European Union calls for Europe to become a smart, sustainable and inclusive economy. Albeit the European Commission's initiatives are mainly driven by economic and labour market goals, the European Commission clearly emphasises in its [Digital Agenda](#) and the [Strategic Framework for Education and Training 2020](#) the need for innovative learning and teaching approaches in the member states to enhance digital skills and prepare the workforce for the digital jobs of the future. This mirrors the engagement at international level. Research studies and reports from the [OECD](#) and [UNESCO](#), all point in the same direction: the inherent need to ensure that education institutions are equipped to apply ICT in teaching and enhance teaching competences regarding the pedagogical use of ICT at all levels of education as a means to shape the world of the future.



Empowering Education Trade Unions: The Key to Promoting Quality Education

C Aim

Aiming for high quality education, this policy paper wishes to provide education trade unions in Europe and their affiliated teachers and education employees a clear vision and analysis of the 21st century teaching profession and the use of ICT. The policy paper reflects the work of ETUCE and its member organisations on the challenges and opportunities of the 21st century for the teaching profession and the use of ICT on which to develop further actions at European, national, regional and local level. The objective is to support ETUCE member organisations and their affiliates in developing concrete strategies and actions to increase awareness among the relevant stakeholders of the importance of the teaching profession in the 21st century with regard to the pedagogical use of ICT for the promotion of innovative and creative competences and skills and to enhance learning outcomes in subjects. Essentially, this policy paper intends to assist education trade unions in developing a concrete and practical education trade union approach to shaping the teaching profession of the 21st century with a focus on the use of information and communication technology in education.

This document is meant to be a practical supporting and orientation tool that is to be assessed and adjusted to the national context concerning the teaching profession and the use of information and communication technology in education. The principles, approaches and processes suggested in the document are intended to be useful and relevant to existing information and communications technology, but also to the deployment of future technologies.

D Scope

The policy paper addresses all relevant actors in the field of education. This includes the social partners in education – education trade unions and employers in education, education authorities, governments, and the whole education community, consisting of teacher training institutions, education institutions, education institution leaders, teachers and other education personnel, students and parents. The policy paper also addresses relevant actors in digital media, such as digital media providers and others operating in this field. Including all these actors in developing strategies on tackling challenges and making use of opportunities that arise from the advancing digitalisation of society is essential to engage them all in the process. The objective is to give education personnel a voice in further developing their profession and to further empower them to influence future developments regarding the use of information and communication technology in European education systems.

E Policy

1. Introduction: Information society and its Impact on Education

In recent years, the world has shifted from a largely production driven economy to one dominated by services. Knowledge-creation has become a critical value factor for both production and services.



Empowering Education Trade Unions: The Key to Promoting Quality Education

Information and communication technology is the main element that distinguishes globalisation from earlier periods of economic integration and interdependence. Moreover, the digital transformation is generating major changes in industries and services. This includes the transition from traditional employment to digital jobs.

ICT is used in many different ways, e.g. to communicate, to learn, to access government services, to shop, to download music or to play games. It also facilitates social and/or political virtual networks. In this way, ICT plays an increasing role within the socialisation of children and young people. On the internet they find answers to their questions, share and create content and cultural products, maintain friendships, enrich their identities, express themselves, and find various ways to perceive and construe their world.

Information and communication technologies tend to dissolve some traditional boundaries: those between public and personal, between private life and work or between global and local. Although ICT offers opportunities and potential in cultural and political areas in spite of its limitations, it also opens doors to real dangers including cyber-criminality, hazardous and harmful content, increasing commercialisation, promoting consumption and market “values” and facilitating technological surveillance and the expropriation of personal data.

Society and governments need to be aware of the potential and risks of a digitalised society, for example by pursuing comprehensive digital education, full participation of citizens and a cross-cultural understanding. Many European countries have national strategies in place to foster the use of ICT in different areas including a specific strategy devoted to education, but large implementation gaps remain.

Impact on Education

The changes in European societies and economies are inevitable and rapid. The demands are strong on education and training systems to adapt to these new conditions. They oblige teachers to reflect on pedagogical changes. When people grow up, live and work in an increasingly digitalised society, it is crucial that teachers and trainers assume a leading role in shaping the use of ICT in education, from an early age through to Vocational Education and Training, Higher Education and adult learning.

Digital Education is mostly seen from an economic perspective, for example by emphasising the European shortage of ICT professionals and the increasing demand for digital skills in the labour market. However, the primary objective of education is not to meet the specific needs of the labour market but to educate for life. The question for teachers is: What *about* and how shall students learn *with* digital and other media, so that they are well prepared for life and lifelong learning? In other words, teachers should have the autonomy to choose and vary methods of instruction.

A successful use and integration of ICT to help deliver quality education depends largely on highly-qualified and motivated teachers. ICT can be a helpful tool to improve teaching and learning, to make it



Empowering Education Trade Unions: The Key to Promoting Quality Education

more inclusive, to widen access and to raise the quality of education. But it does not do so by itself. It is a tool among others.

Education trade unions in Europe aim to support their affiliates in using the opportunities and minimising the risks of ICT. They encourage their affiliates to promote a highly qualified, professional and critical use of ICT. Teachers, who are the promoters of the values of education as a public good, seek to shape the future of ICT in education to contribute to quality education for all. In the teaching profession, ICT becomes a tool to lay the foundation for further academic pursuits, employment, active citizenship and social cohesion.

Regarding digital learning, ETUCE member organisations strive for good working and learning conditions, for an adequate infrastructure and sufficient funding of ICT in education institutions and, finally, for the safety and well-being of students and education personnel. ICT should not be used as a vehicle for education to be driven by profit or to replace public education. Education is not a business but a human right. As such, it has to be excluded from trade agreements.

ETUCE promotes ICT in education as an important topic for social dialogue and collective agreements with employers as well as for negotiations with education policy-makers and other actors in the field of ICT and education. For this it is essential that education trade unions ensure, maintain and improve their capacity to act and be acknowledged as professional associations in this field.

2. Quality teaching, skills and competences

a. Role of teachers

Any policy that seeks to improve the quality and outcomes of education must put teachers at the centre. As the use of ICT in education opens up new perspectives in the dissemination of information and the creation of knowledge, the role of teachers changes.

In order to retain professional autonomy, it is crucial that teachers assert their role as experts regarding ICT as a pedagogical tool. Teachers should give consideration to reflecting upon pedagogical changes, experiencing new teaching tools in collaboration with colleagues and students and learning about ICT practices through hands-on experience. If teachers do not assume leadership in this area, other interests will define the future of ICT in education, probably leading to a shallow and short-term economic perspective.

ICT as a pedagogical tool is one of a range of techniques in the repertoire of a skilled teacher. Therefore, it is crucial to reassert the principle of the **professional autonomy of teachers** within the community of education institutions. Every teacher should have the autonomy to choose and vary methods of



Empowering Education Trade Unions: The Key to Promoting Quality Education

instruction, selection of teaching materials, pedagogical approaches and evaluation methods. Teachers should be effectively involved in the development and assessment of new programmes, courses, curricula, validation and educational resources. Teachers should have the academic freedom not only to choose and develop learning materials that correspond to the needs of their students but also to choose pedagogical approaches adapted to each individual student. Evaluation methods of the students' outcomes should not be imposed upon them by leaders of education institutions.

In many ways, the digital world makes teachers even more essential for the learning process, as learners need to learn to navigate and evaluate a mass of information. The importance of understanding context, having sound knowledge and training in critical thinking, has never been greater. Here **teachers should be role models for students** and convey an open, albeit critical, attitude to digitalisation with a view to ensuring the effectiveness of the pedagogical use of ICT in teaching.

Emphasis should be put on the role of teachers as counsellors and facilitators for the use of **ICT as an added value to teaching and learning**. In the fast-changing digital world, teachers may find themselves having less knowledge about a certain tool or software than the learners. This may be a challenge, but also a stimulating new learning situation where teachers and learners can discover and interpret technology together. In this context, teachers also need to consider the pedagogical changes that the use of ICT in teaching brings about, such as providing innovative teaching and learning opportunities or moving to more 'learner-centric' methods.

Understanding and implementing a sound approach to ICT facilitates teachers' cooperative working practices and collegiality in developing new teaching methods and the new role of teachers. Such efforts should be fully supported and funded by education authorities.

b. Teachers' digital skills and 21st century competences

From a teacher's perspective questions of education goals and learning support are crucial for his/her work. Thus, the use of ICT is a tool for teachers to encourage and support students' purposeful learning. To integrate the use of technology into the curriculum, teachers require many different skills and competences.

In general, teachers should be able to show initiative, leadership, problem-solving skills, security awareness and self-reflection. This goes hand in hand with an excellent knowledge of the **curriculum** standards for their subject, as well as knowledge of standard **assessment** strategies. In addition, they should have the opportunity to provide students the possibility of combining informal learning with formal learning in education institutions, with the curriculum allowing them to do so.

Teachers require knowledge about how ICT can be used for teaching and learning so that they are able both to assess where the use of ICT provides an **added value** and to combine their knowledge and skills



Empowering Education Trade Unions: The Key to Promoting Quality Education

in the fields of educational content, pedagogy and technology. Teaching students how to use the internet and social media in a safe way and for learning purposes requires that teachers are trained to be able to adapt the use of technology to fit their teaching while ensuring that equitable access is provided to all students, e.g. applying ICT in a pedagogically useful way and adapted to the age of the students.

Information and communication technologies can help teachers in their daily pedagogical and practical professional life. That is why teachers should have comprehensive knowledge of basic hardware and software, such as a digital learning environment, student monitoring systems, management applications, using web browsers to find their way on the internet and to be able to participate in social networks as well as familiarity with subject-specific tools and applications.

National educational technology standards are expected to change dramatically. Education trade unions should be consulted when national education authorities are planning to devise a set of competences and skills that teachers and education institutions need to obtain in order to cope with challenges that arise in their daily work. Subjects such as media capture, media manipulation, media presentation and publishing, website development, data entry, handling databases, information gathering, collaborative environment and file sharing should be integrated in curricula.

In the long term, it is essential that every teacher is trained to have these skills and competences. In the short term education institutions need to provide digital based learning for every student and every team of teachers should at least have one teacher with these skills.

c. Teachers' initial training and continuous professional development

If teachers are to obtain and further develop the skills and 21st century competences that they require for their work, **access to integrated high quality initial training and continuous professional development** throughout their careers is crucial, based on the following objectives.

The training programmes for the pedagogical use of ICT should: a) be inclusive, b) aim at improving access to and quality of education, c) not harm teachers' working conditions, d) have a teachers' professional development component, and e) respect national curricula.

Initial teacher training and continuous professional development should be provided free of charge and during working hours to the individual teacher by public authorities.

Teacher training should focus on helping teachers to identify the pedagogy they want to use, and to enable them to choose the ICT tools that support their teaching rather than putting the tools first. For this to happen, teachers need to have a broad knowledge of which tools are available and where they can be best applied. Hence initial teacher training should address the issues of understanding the **role of ICT in**



Empowering Education Trade Unions: The Key to Promoting Quality Education

education, curriculum and assessment, in pedagogy and professional teacher training and place ICT within content areas and pedagogical approaches.

Teacher training should take into account the growing importance of media in the lives of students. This has changed the socialisation of young people, their identity and culture. In addition, teacher training should provide knowledge on the legal, ethical, social and economic dimensions of ICT.

Providing practical training opportunities that include technical, collaborative, pedagogical, didactic and methodology dimensions such as complementary techniques for digital and non-digital in-class instruction is important. The priority in teacher training is to equip teachers with skills and knowledge that allow them to create and manage complex projects, collaborate with other teachers and academic staff and to make use of networks in order to access information to support their own professional development.

Teachers' progress in developing digital skills on a long-term basis and at various levels, should be taken into account among many other relevant issues in professional teacher promotion systems. Moreover, the time necessary to make progress in developing digital competences needs to be included as an essential element of a teacher's workload.

Teacher training institutions play a crucial role in initial and continuous professional development of teachers. The continuous update of digital resources provides the basis on which they can fulfil this role. In this context, the introduction of various systems of continuous professional development including online teacher training courses and access to internet and open education resources can be further explored.

Promoting further cooperation between education institutions and academic research institutions through educational projects is important in order to provide insights into learning and teaching processes and to encourage research-grounded outcomes, especially in the assessment of students' competences, as regards both the digital competences and through digital means.

d. Assessment and evaluation

Assessment and evaluation is an important topic regarding ICT in the teaching profession. It is also a sensitive issue in terms of certification recognition, which ranges from how to evaluate the effectiveness of certification carried out with ICT to how to ensure that someone receiving certification has proven mastery.

Technology can change the way assessment and evaluation are embedded into teaching and could be perceived as the ultimate driver for teaching, regarding in particular the provision of individualised teaching/learning approaches and the constant upgrading of skills. It is important therefore to **ensure that the use of ICT for assessment and evaluation is aligned to educational purposes** and is part of the



Empowering Education Trade Unions: The Key to Promoting Quality Education

learning process. Teachers and educators must be the main person in charge of use of ICT in assessing and evaluating students.

Assessment has a powerful impact on education, not only serving an evaluative function, but also influencing how students learn and acquire knowledge. Expanding the scope of assessments from evaluating only the final state of knowledge to evaluating learning processes, e.g. through learning analytics, has the potential to transform what is taught and how, and to enhance collaborative processes between teachers and students. The use of ICT in teaching, assessment and evaluation should therefore help limit and reduce the administrative burden of education personnel with a view to making more time available for teaching and the interaction between teachers and students.

Technology influences the way people think about assessment. It is thus important to address the way technology can render assessments more effective as a tool for improving student learning and how it can increase the range of learning outcomes that can be assessed, as well as reflecting on what these assessments are to look like. ICT is used both to increase subject learning outcomes and to enhance transversal skills where students learn to do project work, to be innovative and critical, and to cooperate. Assessment systems therefore need to be developed in such a way that they test all these required skills. Using ICT in exam situations is the logical consequence and it is therefore equally essential that exam assignments are developed not only for simple testing of basic knowledge but to test all the students' skills together.

Teachers and education trade unions should be involved in setting up evaluation schemes which identify teachers' strengths and development needs. Such schemes should not be intended or designed for punitive purposes.

Regarding the quality assessment and evaluation of teachers and of the education system it is important to define **clear indicators for monitoring and benchmarking as well as limits**. Teachers should not be subject to performance-based pay schemes that rely on student learning outcomes measured through standardised tests.



Empowering Education Trade Unions: The Key to Promoting Quality Education

3. Quality Teaching Tools and Resources

a. Allocation of resources

Quality Tools and resources are prerequisites for quality education that help to ensure **full access for all** to the digital world. They support teachers and students in mastering the necessary skills to effectively use new technologies in education.

To allow for the development of quality teaching tools, teacher training institutions, governments, education authorities, education trade unions, education employers and leaders of education institutions should support the involvement of education personnel in the production of ICT teaching content and material and its use in education, e.g. through the provision of working time and appropriate resources for staff. They should ensure that educational software is available in the language used in education and that it is adapted to the specific needs of learners.

Up-to-date equipment, both **hardware** and effective **software**, is fundamental to enable teachers and students to access all online systems for working and studying. Education institutions and teacher education institutions should provide a work environment that can respond to the real ICT needs of teachers and students and further the use of open access policies and free software or shareware whenever possible.

Maintaining and regularly updating hardware and software requires continuous monitoring and follow-up. In addition, the enforcement of rules of access and use, mastering encryption techniques to protect information in storage or in transit over the network are a major concern. In order to be able to perform this task, education institutions should be able to count on teachers and other (technical) **staff resources** specialised in this field. To increase student learning outcomes education institutions should also offer pedagogical ICT support to help teachers to develop their subject didactics as they use ICT.

To allow education institutions to provide quality tools and resources for teaching and to deliver quality education that respects data protection and intellectual property rights, **major investments are necessary** to make both technical contents and scientific investigation both available and affordable.

Today e-learning is considered a supplement to face to face learning (“blended learning”), which has to be embedded in the context of education content, didactics and pedagogy. From a trade union perspective e-learning and its tools must comply with various criteria, such as quality, equity, access and the protection of public education from commercialisation and privatisation.

Moreover, e-learning must not be misused to replace proven pedagogical practices. It is the learning process that ensures the interaction between teachers and students and the support for individual students. Good e-learning examples in further education and adult learning cannot simply be copied to primary and secondary education because schools also fulfil an important function of social learning,



Empowering Education Trade Unions: The Key to Promoting Quality Education

where students learn to be together as social and active democratic individuals and learn to work and learn together.

Massive Open Online courses (MOOCs) and **Open Educational Resources (OER)** are often associated with high expectations of cost reduction and economic advantages. Especially MOOCs, but also OER, bear the risk of a highly monopolised market. Market control is one of the reasons why MOOCs and OER may be misused to promote commercialisation in the education sector, to reduce public funding or to increase managerial control over teachers and academic staff. Teaching staff, however, should have the freedom to select and use teaching and support materials which they believe to be appropriate. Open Educational Resources should be given a standard set of metadata (subject, level, language, etc.) so they can be looked up, indexed and filtered efficiently by teachers. For teachers OER must be easy to find, easy to use or adapt, trustworthy, legally sound and cost free for use in both teaching and in teacher training.

Education policy has to assume the responsibility for adequate public funding, for quality, for transparency (about origin and funding), for professional orientation and for an inclusive use of e-learning. Governments and education authorities should ensure that publicly funded educational materials are available through open licenses and that OER contribute to the reduction of education barriers and social disadvantages. In this context teachers and students should be encouraged to share their own educational materials with other users within Open License Approaches.

Teachers as experts for teaching and learning and their trade unions, as experts for professional development and social dialogue, should be involved in processes of implementation of e-learning-tools and programmes.

b. Internet safety and data protection

The online world is still largely an uncharted territory outside the reach of legislation, regulation and societal norms. Children often venture into this world unaccompanied by an adult, and face many risks. In order to tackle serious dangers such as cyber-criminality related to economic crime or sexually-related crimes, there is a need for stronger legislation and public investigation and to raise awareness of the different aspects of internet safety, where education and training systems (will) play a key role.

Education authorities need to provide teachers and students with knowledge on how to navigate the internet safely. Parents need to be aware of their responsibility to educate and talk with their children about internet safety. The constantly evolving technology exposes teachers and students to new risks and threats and requires not only a basic, general safety awareness but a continued update of policies and instructions by education authorities. For some online risks, solutions are obvious, while for others they may be more complex. Research on education institution-related internet safety is therefore needed to develop the most effective **awareness raising strategies** possible. Emphasis should also be put on monitoring the implementation of safety rules.



Empowering Education Trade Unions: The Key to Promoting Quality Education

Cyber-harassment is one of the major concerns for children and adults in the internet. ETUCE's definition of it is the use of ICT for repeated, deliberate and hostile behaviour by an individual or a group with the intention to harm others. All education institutions need to have systematic risk assessments that include harassment, work to raise awareness and develop strategies to prevent and tackle cyber-harassment.

Media literacy is a 21st century approach to education which provides a framework to access, analyse, evaluate, create and participate with messages in a variety of media. In an online world flooded with incorrect information, disinformation and rumours, the skills of media literacy are crucial, especially in the context of education. From a societal perspective, there is also a great challenge that comes from the increased fragmentation of media, which means that citizens may develop fundamentally different views based on their different sources of information.

The increased use of digital and online media has been associated with risks of declining concentration and attention, as well as addiction to online games or other content, which is why a focus on **health, rest and well-being** of students and education personnel should accompany an internet safety programme.

The education community and society as a whole need to be made aware of the potential and risks that digital systems carry regarding technological surveillance and collection of personal information. Teachers and students should be informed about **data protection and intellectual property rights**, copyright issues and illegal downloading, as well as open access information models.

Introducing strict plagiarism prevention measures at all levels of education and providing teachers with legal certainty in the use of ICT materials for teaching, help to strengthen education personnel's confidence in using ICT in teaching. Those who work with education records have legal and ethical obligations to observe rigorous procedures for protecting the privacy of the original information and the individuals whose records are involved. Sharing education information for commercial purposes should be prohibited.

Guarantying data security should be a major concern in the daily work of teachers and in teacher training. Special attention should be given to the processes of authentication, validation and access to networks.

c. Privatisation and commercialisation of education

According to the OECD, there is little evidence of improved learning outcomes through the use of ICT in education. Investing heavily in education institution computers and teaching technology without accompanying measures or teacher training does not improve students' performance. Frequent use of computers in education institutions under those conditions is more likely to be associated with lower results.



Empowering Education Trade Unions: The Key to Promoting Quality Education

There may be some advantages for public education institutions to cooperate with private companies, corporations or foundations to integrate ICT in education through public-private partnerships. However, it is crucial that education trade unions take an active role in making education authorities and education institutions aware that **private market opportunities are not necessarily compatible with quality public education** and that media can be a gateway to commercialisation. Education trade unions should help education authorities and education personnel understand those changes and critically assess the benefits and drawbacks of public-private partnerships and to ensure that the education system does not fall prey to lobbying interests in an extremely competitive new segment for the private market.

The engagement of private companies needs to be subject to agreements based on terms established with education trade unions and rooted in best education practices. Teachers need to be involved in choosing and developing teaching and learning materials as well as in the assessment of their quality. To guarantee free access for students and teachers to teaching and learning materials compiled and financed with public money, governments and education authorities should enact legislation on the use of open source software in developing teaching materials.

Encouraging experienced teachers to share their experience and knowledge is important and requires that teachers' copyright is protected when they produce teaching material in their private time. The challenge for policy makers is to combine this protection with solutions that make relevant material available for teachers and provide clear guidance on copyright rules and restrictions.

All education providers must follow the same rules, regulations and procedures. These should require equitable access for all students to high quality education including highly trained and qualified teachers and academic staff, without discrimination and regardless of the students' ability to pay. Teachers, academic staff and education support staff's rights to decent working conditions, appropriate salaries, fair recruitment and employment and quality professional development must be guaranteed in all contexts. Industry and/or corporations need to respect the professional judgement of teachers and other education personnel in questions of methodology, pedagogy, reporting, assessment and curriculum matters.

d. Inclusion and equal opportunities

Many children are still excluded from, and within, education for a variety of reasons. Inclusion remains therefore a major challenge, especially when it comes to digital inclusion and equal opportunities.

Society in Europe is increasingly media based. In order to avoid the exclusion of a large part of the population from the digital world, governments should implement measures that allow all citizens to access ICT. By enhancing that access and facilitating contact with governments and the political process, the gap between rich and poor and between those from urban and rural areas can be reduced. Digital development can also narrow gaps between and within education institutions. In the context of the



Empowering Education Trade Unions: The Key to Promoting Quality Education

teaching profession, education plays a key role in fostering democratic **digital citizenship**, i.e. the appropriate and responsible use of technology.

Inclusion is a robust concept which refers to ‘the right to belong to and participate fully in society’. Teachers and students are confronted with the technological gap in education institutions and are, in that context, rejecting the idea that only a few learners have ‘special needs’. The social model of inclusion suggests that all students as individual learners present their own particular characteristics and have their own specific educational needs. Such a perspective implies that teachers are required to adjust and change their teaching in order to enable each student to participate in the life of the education institution to the best of their abilities.

Teachers and education trade unions need to increase efforts to overcome the gender stereotypical use of ICT and create more incentives for both boys and girls to become competent, ICT savvy users, to prepare them for life and for the labour market of the future which relies to a growing extent on digital skills and competences.

Teachers and support staff need ongoing training in order to make informed decisions regarding the technological needs of all students, including those with special needs, e.g. taking into account that e-learning tends to be self-determined learning with which disadvantaged students often have more difficulties. The building up of an inclusive classroom is a considerable challenge, entailing change and innovation in teaching and learning processes.

The process of inclusion can be fostered by means of new technological tools but it requires, in addition, changes and modifications in educational content, approaches, structures and strategies. In this way it becomes possible to meet the specific learning needs of different learner groups, including students with disabilities. Though specific applications of ICT are extremely diverse and varied, they can be used as compensation, and for didactic and communication purposes.

4. Working conditions/learning and teaching environment

a. Attractiveness of the profession

The attractiveness of the teaching profession is critical and professional salary levels, decent pensions and working conditions are necessary to make teaching an attractive career option. ICT is also one of the levers, among many others, for enhancing the attractiveness of the teaching profession. It can help teachers and facilitate their tasks both in teaching as well as in administration and organisation. The use of ICT should ultimately lead to a decrease of workload, not to supplementary hours for teachers. It should also mean that teachers, by eliminating some existing tasks, are able to devote relatively greater time to practising their profession.



Empowering Education Trade Unions: The Key to Promoting Quality Education

Therefore, to ensure a reasonable **workload** and a good **work-life balance**, additional resources to increase, for example, the allocation of time for trial and error and additional staff and administrative support systems, need to be provided to allow teachers to explore new approaches and design their learning environments and assessment. This goes hand in hand with continuous **formal and informal pedagogical and technical support** provided by educational authorities and education institutions to address teachers' daily needs and challenges. This is facilitated through a combination of professional, administrative, technical and general staff to promote the use of ICT in teaching and learning.

Concerning **working time**, teachers' workload including out-of-education institution contact with students, parents, colleagues and superiors should be regulated in order to ensure that teachers are not expected to be available 24 hours a day, seven days a week. If nothing is done, constant availability through new technology may rapidly erode working conditions. A discussion with the education institution community, including education trade unions, regarding the introduction of and the use of new technologies may be beneficial to address ICT challenges and benefits. A common, collaboratively developed ICT policy in the education institution should show leadership commitment and create ownership of the process. A common policy e.g. about when students are allowed to use their computers or access social media helps the individual teacher to stay in control of the learning process in the classroom.

Access to integrated high quality **initial training and continuous professional development** to all teachers throughout their careers makes the teaching profession more attractive.

This is also the case when the **teaching and learning environment** is designed in such a way as to support teachers and other education personnel in their mission. School leaders and education institution management should enter and maintain a dialogue with education personnel with a view to creating an atmosphere that encourages the use of ICT in teaching and allows teachers and other education personnel to exercise their professional autonomy regarding the development of the curriculum. Education authorities and education institutions should provide the necessary ICT infrastructure and resources to facilitate this environment as well as a safe working environment.

All issues concerning the use of ICT to enhance the profession, the status of teachers and the quality of education are highly relevant to the recruitment of highly qualified, motivated teachers to the teaching profession. If ICT becomes a tool that shrinks administrative burdens, provides more time for teaching and quality preparation and expands rather than reduces professional autonomy, it not only makes the profession more attractive for young people, but it also encourages teachers to stay in the profession.

ICT issues related to recruitment and retention of teachers are vital for education's present and future in light of the serious teacher shortages in many countries and in many subjects. They are, therefore, compelling considerations not only for teachers and their unions and social dialogue, but for all of those in the education community and larger society striving to achieve and sustain quality education.



Empowering Education Trade Unions: The Key to Promoting Quality Education

b. Addressing ICT in education within social dialogue/collective agreements

Social dialogue is of crucial importance and value for employment and society as a whole. ICT constitutes an enormous challenge for the social partners and with further evolution and developments in this area, it is only possible to make progress and protect social welfare and prosperity through ongoing dialogue and cooperation.

It is already clear that the introduction and application of new technologies has a huge impact on teachers and education administrators. However, much is not yet known or understood about the real and potential effects of ICT on education. Additional research is needed on the use of ICT and its impact on teachers, including the time needed to prepare lessons, collecting teaching material and other adjustments. Changes in working conditions may be necessary and need to be subject to negotiation between education trade unions and education authorities not only as a matter of right, but also to ensure that ICT is introduced in a suitable way to enhance the teaching profession. This includes protecting teachers from the impacts of dissolving boundaries between their work and private life.

Education trade unions should be prepared to face the challenges of ICT and to shape their vision of the future teaching profession that includes the use of ICT. Policies and plans regarding the teaching profession and the use of ICT need to be developed with the full participation of teachers and their unions. Education personnel have to be involved in every step of the design and development of appropriate ICT policies for education purposes. Education trade unions need to negotiate with employers as equals in order to come up with useful and appropriate agreements.

To ensure that education personnel are involved in some key ICT issues, it is necessary to enhance the role of negotiations in setting the rules for evaluation criteria, evaluation indicators and training. Education governing bodies and employers must assume their responsibilities to support teachers and their training. ICT will affect the workload of teachers. It has the potential to both increase it and reduce it. Such issues, which are related to salaries, benefits and working conditions, need to be agreed and subject to collective bargaining.

It is important that education trade unions foster dialogue at education institutional level to involve teachers and school leadership. Where necessary, other relevant actors in education and operating in the field of digital media need to be identified to ensure the correct implementation and application of the results of negotiation.

Data on teachers and students is saved and made available via ICT. Social dialogue should lead to relevant agreements with employers about which data can be saved and about access authorisation. Teachers need to be assured access to their data and have the guarantee that data is deleted at their request. Such agreements also need to address issues as cyber-harassment and other health issues related to the use of ICT.



Empowering Education Trade Unions: The Key to Promoting Quality Education

Due to rapid changes in ICT, continuous professional development in this area is necessary. Social dialogue, including bargaining, should provide that education employers grant teachers the opportunity to benefit from target-oriented and cost free training in this area. Education employers need to provide teachers with additional resources (time, staff allocations, and administrative support/systems) to allow them to explore new approaches. To ensure that adequate resources are available, collaboration between national and local authorities may be necessary. The amount and conditions of resources committed should be determined as far as possible in negotiations between education authorities, education employers and education trade unions.

c. ICT for education institutions' administration and management

The use of ICT in education institutions' administration is part of their daily work and helps to deal with various tasks quickly and efficiently. ICT in education institutions' administration should be applied to support the work organisation, administration and problem-solving so that it is more effective and citizen-friendly; it should not lead to additional bureaucracy, barriers to access or red tape. The hardware and software used should respond to these considerations.

It is the employers' responsibility to provide high quality hardware and software. Teachers and trainers need to receive what is necessary for their pedagogical and administrative work without being flooded with unfiltered, irrelevant information that distracts them rather than enhances the practice of their profession and the provision of quality education. Pedagogical activities are the core of teachers' work. Therefore the use of ICT should support teachers and educators, not add to their working time .



*Empowering Education Trade Unions: The Key to Promoting Quality
Education*

F Set of Recommendations (Conclusion)

Education trade unions in Europe should at European level:

1. Support the professional autonomy of teachers in the context of the use of ICT to choose methods of instruction, materials, pedagogical approaches and evaluation strategies and promote teachers as counsellors and facilitators for the use of ICT as an added value to teaching and learning;
2. Promote pedagogical digital skills for teachers and integrate them amongst others in the curricula of all teachers' initial training and continuous professional development, including the recognition of these skills;
3. Promote pedagogical digital skills as part of initial and continuous teacher training with a view to ensuring that teachers are updated and have the competences to incorporate ICT into their teaching practice;
4. In light of the European Digital Agenda, ensure the exchange of professional experiences among European teachers by promoting European projects, training, exchange of good practices and communication among teachers from different countries;
5. Ensure that the use of ICT for assessment and evaluation reflects both the competences and knowledge of students and is part of the learning process to favour the recognition of the learning process and outcomes;
6. Encourage the use of ICT in assessment and evaluation that seeks to reduce the administrative burden on education personnel in order to serve in the first instance educational purposes and the interaction between teachers, leaders of education institutions and students;
7. Advocate for and participate in the definition of European policies regarding the implementation of internet safety, intellectual property rights and data protection of students' and teachers' data;
8. Promote media literacy as an important part of developing digital competence and enabling digital citizenship;
9. Ensure that e-Learning complies with various criteria, such as quality, equity, access and the protection of public education from commercialisation and privatisation. ICT in education must not be misused to increase managerial control over education personnel or students;



*Empowering Education Trade Unions: The Key to Promoting Quality
Education*

10. Advocate for Open Educational Resources to be given a standard set of metadata (subject, level, language, etc.) so education personnel can efficiently look up, index and filter them. Open Education Resources must be easy to find for teachers, easy to use or adapt, trustworthy, legally sound and cost free for use in both teaching and in teacher training;
11. Seek influence on European framework and national education policy strategies in the field of ICT and education in order to ensure that they are based on increased public funding and seen as a common goal for the European research and development area with a view to raising awareness among education authorities and education institutions that private market opportunities are not necessarily compatible with quality public education and that media can be a gateway to commercialisation;
12. Urge governments and education authorities to enact legislation on the use of open source software in developing teaching materials with a view to guaranteeing free access for students and teachers to teaching and learning materials compiled and financed with public money;
13. Raise awareness amongst European and national policy makers that encouraging experienced teachers to share their expertise and knowledge is important. It requires that teachers' copyright is protected when they produce teaching material. Education trade unions should address the challenge that policy makers face in combining this protection with solutions that make relevant material available for teachers and providing clear guidance on copyright rules and restrictions;
14. Promote policies regarding the use of ICT that comply with EU legislation on equality, with a view to enhancing the full participation of citizens, including students with special education needs and groups at risk of digital exclusion, and strengthening cross-cultural understanding;
15. In the framework of the Education and Training 2020 Strategy, raise awareness of and promote the importance of the status of the teaching profession in society, especially regarding ICT;
16. Encourage the active participation of social partners in education in the development of European policies regarding ICT in education and facilitate social dialogue and collective agreements with governments and education employers on the use of ICT in quality education;
17. With a view to including the use of ICT and the 21st century teaching profession in the European Sectoral Social Dialogue in Education, continue working towards convincing social partners at national level about the important advantages of social dialogue;



Empowering Education Trade Unions: The Key to Promoting Quality Education

18. Monitor the impact of ICT-oriented investments on the effectiveness of education and teachers' working conditions;

Education trade unions in Europe should at national level:

19. Raise awareness among national education authorities that, in order for education personnel to teach students how to use the internet and social media in a safe way and for learning purposes, they need to be trained and able to adapt the use of technology to fit their teaching;
20. Advocate for training programmes for the pedagogical use of ICT that: a) are inclusive, b) aim at improving access to and quality of education, c) do not erode teachers' working conditions, d) have a teachers' professional development component, and e) respect national curricula;
21. Insist that public authorities provide initial teacher training and continuous professional development free of charge and during working hours to the individual teacher;
22. Advocate for high quality teacher training and professional development programmes to respond to the evolution of technology;
23. Develop assessment and evaluation schemes which include ICT as a tool for improving learning (learning analytics);
24. Support the inclusion of media literacy as a core concept in any curriculum on digital competence;
25. Reflect on the impact of ICT on students' and teachers' health, rest and well-being and establish procedures that ensure their safety and well-being in the digital environment;
26. Urge education authorities and education institutions to strive for good working and learning conditions, for an adequate infrastructure and sufficient funding of ICT in education institutions and for the safety and well-being of students and education personnel, based on the provision of working time, sufficient resources for staff and technical equipment, high quality hardware and software and material while maintaining a good balance among a variety of resources to ensure quality education;
27. Advocate that all providers of education follow the same rules, regulations and procedures. This should require equitable access for all students to high quality education including highly trained and qualified teachers and academic staff, regardless of ability to pay and without discrimination. Teachers, academic staff and education support staff's rights to decent working conditions and salaries, fair recruitment and employment and quality professional development must be guaranteed in all contexts. Industry/corporations need to respect the professional judgement of teachers and



Empowering Education Trade Unions: The Key to Promoting Quality Education

- education personnel on questions of methodology, pedagogy, reporting, and assessment and curriculum matters;
28. Advocate for governments to narrow the digital divide by the provision of public ICT facilities and by funding education especially for disadvantaged regions and groups, so that everyone is included regardless of his/her social background, age, special needs, gender, ethnic origin, belief or other strands of potential discrimination. Building a sustainable future society and improving its social cohesion, is a question for society as a whole, and especially a question of education;
 29. Increase efforts to overcome the gender stereotypical use of ICT and create more incentives for both boys and girls to become competent ICT savvy users, to prepare them for life and for the labour market of the future which relies to a growing extent on digital skills and competences;
 30. Call on governments and education employers to provide access to integrated high quality initial training and continuous professional development for all teachers and advocate that the necessary support in form of a combination of professional, administrative, technical and general staff as well as time is given to include progress in developing digital competences as an essential element of teachers' work;
 31. Urge governments, education authorities and employers in education to ensure that teachers' salary levels, decent pensions and working conditions make teaching an attractive career option;
 32. Be prepared to face the challenges of ICT and shape their vision of the future teaching profession. Social dialogue must ensure full participation of teachers, school leadership and their trade union representatives at national, regional and local levels;
 33. Negotiate with employers as equals to come up with appropriate agreements with a view to guaranteeing that teachers receive target-oriented and cost free training in the field of ICT;
 34. Convince education employers about the need for professional research and data collection on the impact of ICT on teachers' working environment;
 35. Support education personnel facing challenges related to the use of ICT in the education context;
 36. Ensure that ICT is applied to make administrative processes more effective and citizen-friendly with the aim of avoiding additional bureaucracy;



*Empowering Education Trade Unions: The Key to Promoting Quality
Education*

37. Advocate that ICT becomes a tool that shrinks teachers' administrative workload, provides more time for teaching and quality preparation and expands, rather than reduces, the professional autonomy of teachers in order to make the teaching profession more attractive;

Education trade unions in Europe should at local (education institution) level:

38. Promote teachers as leaders in changes to pedagogical tools and consider the pedagogical changes that the use of ICT in teaching brings about, such as developing innovative teaching and learning opportunities or reflecting on the changing role of teachers. Teachers, who are the promoters of the value of education as a public good, shape the future of ICT in education to ensure quality education for all;

39. Ensure that teachers know how to, a) use ICT for teaching and learning b) assess where ICT has added value and c) combine their knowledge and skills in the fields of educational content, pedagogy and technology with a view to ensuring that equitable access is provided to all students;

40. Ensure that teachers and education authorities provide teachers, trainers and education personnel with relevant information regarding pedagogical developments in the area of ICT and are given the opportunity to participate in continuous professional development;

41. Advocate that teachers have autonomy and responsibility for the assessment of their students and contribute to the definition of the evaluation criteria regarding ICT competences in various subjects;

42. Encourage teachers to assume a leadership role in shaping education on how to navigate the digital world safely, critically, independently and sustainably;

43. Urge all education institutions to establish systematic risk assessments for teachers' work in relation to internet safety, to work towards raising awareness and developing strategies to prevent and tackle cyber-harassment;

44. Invite education institutions to inform parents about the potential and risks of digital systems, in order to raise awareness and build a common understanding in the community;

45. Support education institutions and teacher education institutions in the provision of a work environment that responds to the ICT needs of teachers and students and encourages them to use open access policies and free or shareware software as well as to share their own educational materials with other users;



*Empowering Education Trade Unions: The Key to Promoting Quality
Education*

46. Support education institutions in offering pedagogical ICT support to help teachers develop their subject didactics using ICT with a view to enhancing students' learning outcomes;
47. Get involved in the negotiation or planning of the education budget and ICT investment in education institutions and convince employers in education to provide high level equipment, both hardware and software, and assess the level of ICT use in education institutions;
48. Assist education institutions to put measures in place that enable students, teachers and the education institutions to work and learn independently from commercial and private interests which can undermine education goals;
49. Ensure that students and teachers have access to, and are provided with, the necessary ICT infrastructure and resources to develop their skills and competences regarding the use of ICT;
50. Ensure that the teaching and learning environment is designed in such a way that it encourages teachers to promote the use of ICT in teaching and learning and ensures a reasonable workload and a good work-life balance for them;
51. Urge education institutions to develop a common ICT policy in collaboration with the leaders of the education institution, education personnel and the community of the education institution with a view to a)addressing ICT challenges and benefits b)to establishing a positive attitude towards the use of ICT in education and c)to supporting teachers and ensuring they remain in control of the learning process in class; this also involves ensuring that teachers are not expected to be available 24 hours a day and addressing other challenges, e.g. related to copyright, data protection;
52. Ensure that the topics regarding ICT in education are covered in the social dialogue framework agreements;
53. Support leaders of education institutions in effectively implementing administrative procedures to reduce administrative workload and with a view to protecting teachers from digital tools being misused for constant surveillance and control of the education institution community or student's and teachers' behaviour.