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## **Digital Education: from hype and disappointment to change**

*The EU2020 Digital Skills and Competences Working Group and the Digital Education, Learning, Teaching and Assessment (DELTA) Activities 2016-2020*

### **Background and environment**

Powerful and sophisticated ICT is part of everyday life and the world of learning is not an exception. E-learning, open and distance education have been important fields of intellectual excitement and innovative development. The demand for people with new, enhanced skills is growing. Pressure is on all players of the online education community to keep up with new learning, and supply the skills demanded by growing economies.

The challenges posed by the new technologies are permanent whilst the role of human, socio-cultural-economic themes are more and more at the cutting edge. Technology is with us everywhere which validates the horizontal-holistic approach for imperative questions of the period. For the transforming education landscape, challenges come increasingly from the structural and policy fields. Social and economic tensions raise the issues of scalability and micro-credentialing. Practitioners are seeking right approaches to provide learning opportunities. Micro, meso and macro aspects open new lenses for considering the problems. Digital credentials and open badges are the new currencies, starting to transform business models in education.

The educational framing, from policy level down to the actual learning scenario, allows for various types and variations of of ICT enhanced, collaborative, open, distance education and e-learning. Finding and applying the right mix of information, knowledge and creativity is of primary importance for the educational experience, to bring together the strengths of the past with the challenges of the present and opportunities for the future.

The European Union initiatives emphasize solutions to emerging needs, seek to improve competitiveness and professional development; enhance cross-sectoral skills and fuel the engines of social innovation – creativity, entrepreneurship, critical thinking and problem solving.

Education has to be visionary to reach efficiency gains, new sources – and to offer sustainable services, reflecting the complexity of modern societies. New generation of learning technologies and networks are ubiquitous, embedded and mobile which reshape access to and delivery of learning. Market realities put similar pressures on the corporate and University worlds. Stakeholders suppose *academia* to respond to needs beyond teaching and research, better promote innovation and the knowledge economy, manage the new student populations. Universities are expected to detect and attract talents, be magnet of inputs from practitioners, resulting cooperative surplus.

### **What did we learn ? How did we learn? – A critical perspective about change**

Decades after Internet and digital technologies penetration worldwide, we are still talking about their potential for education, but less about the impact. Literature on the role of technology in education is often about enthusiastic claims, with over-promises. A loop of new claims emerges

every time a new digital technology enters the market. The hype is substantiated by the fascination with technology but often also driven by commercial interests

The potential of digital technology linked to change creates thirst for change and disruption which sometimes leads to incoherent arguments on how to improve education.

Promises of digital technologies have been including: increase students' motivation; promote cognitive development, provide interactive resources and real-life experiences, enhance means of communication and collaboration, cater learning material and resources to the pace of each student, enable research through the availability of large data sets. (Ng, 2015).

Speeding up the educational process, allowing to learn faster has also been an expectation. However, technologies do not accelerate the act of learning which is based on a human rhythm. Technologies can ease the access to content, they can speed its consumption, but the act of learning cannot be faster than the time it takes each of us to learn.

Educators often take digital and media skills for granted and may overlook the diversity of learners' profiles and the educational settings. Teachers and learners have to deal with diversity in media and technology enhanced learning environments. In the changing media and technology landscapes, the behaviour, roles and demands of learners are also reconsidered. Matching students' attitudes, needs and the learning environment design is also conditioned by the educational systems.

Using technologies in education is fundamental to empower every citizen in their use of technology in everyday life. Innovation in the systems however are not necessarily mirrored in innovation at a more granular level, or at the level of the single organisation. In education, uptake of digital technologies is seldom innovative. Digital technology is often incorporated into existing teaching and learning practices rather than as a trigger to transform them (Karasavvidis & Kollias, 2017). Actually, digital technologies have rarely been designed to reproduce a lecturing model of instruction. Often, we are really just substituting one technology for another and not engaging in transformation. The use of digital technology in education, whatever high its presence has been in different forms at all levels, is often superficial and unreflective.

OECD research finds in the meantime on long term signs of convincing impact of innovation and technologies in learning. According to them: *Compared to other sectors, knowledge and method innovation is above average in education; product and service innovation is below average, while technology innovation is at the average sectorial level (2014). - Since the mid-20th century, education systems have expanded enormously and human populations have never been more highly educated than today (2016).*

### **Fostering digital education practices**

Digital learning providers are often followers of innovations that have been designed to answer to the needs of other sectors. Digital technologies are there to help solve problems. Instead, we propose reforms that promote the integration of digital technologies in education and in doing so we create problems. Teachers often do not perceive technology as a resource to help with learning, do not see technology as a solution rather, as an add-on that he will have to figure out how to integrate in his subject.

Literature on the use of digital technologies in education is rich in philosophical and visionary terms, but hardly delivers on pragmatic level. Regarding potential for innovation and impact of technology on knowledge creation, researchers are often fascinated by the complexity of the arguments. Yet, we

often find that the focus is on tasks, not on practices and we focus on substitution rather than transformation.

The need to prepare a workforce is one of the many aims of education. Often the problems technologies are designed to solve are not arising from education but from other disciplines or fields. The reasons of policies are meanwhile rather different from those of teachers. Reasons why teachers use technology include: external requests and expectations of others, increasing student attention, using the basic functions of technology, relieving physical fatigue, class preparation and management, and using enhanced technology functions.

The Digital Skills and Competences Working Group suggested to create a vision, from researchers to policy-makers to school leaders, that supports the innovation of practices and to develop shared beliefs about learning and the learning that the educational community values. The act of learning has not necessarily changed because of the introduction of digital technologies, but what has changed is the potential to design learning experiences and how learners engage with such learning experiences.

Assessment plays a central role here, informing each learners on how they are achieving their goals through different types of feedback. Digital assessment can help educators in identifying the need to support students and can facilitate system-level change.

Digital technologies allow to reimagine how to engage with learners. This inspires us to rethink the spaces in which learning takes place and the modes of learning we offer to learners.

Rethinking of experiences brings a need for critical reflection and pushes teachers to transforming how they engage with learners which requires professionals who are comfortable with working in complex situations, designers and implementers of deep learning experiences.

Another perspective to be taken into account is the role of learners and students. The majority of literature focuses on the resistance of teachers, but there are the students as stakeholders as well that can be reluctant to change. The student perspectives remain largely undocumented. They have expectations of a lesson and might be resilient to adapt to reforms in education. Karasavvidis & Kollias claim that until 2017 there was a clear lack of data and insights on how students experience and respond to digital transformation in education.

### **European Education Thematic Policy – Framework, Aims and Activities**

The EU focuses its efforts in creating policy in different fields and on different topics, such as: Early childhood education, Schools, Vocational Education and Training, Adult education, Higher education, International cooperation and policy dialogue, Multilingualism and Education and migrants

The strategic **framework for European cooperation in education and training** (ET 2020) is a forum allowing Member States to exchange best practices and learn from each other by gathering and disseminating knowledge, provide and receive advice and guidance for policy reforms at national level. The framework is based on a lifelong learning approach covering learning in all contexts – formal, non-formal and informal – and at all above sectors.

#### ***ET 2020 pursues the following common EU objectives:***

- make lifelong learning and mobility a reality;
- improve the quality and efficiency of education and training;
- promote equity, social cohesion, and active citizenship;

- enhance creativity and innovation, including entrepreneurship, at all levels of education and training.

The European Commission is also developing initiatives to help work towards a European Education Area. The goal is that, in Europe:

- spending **time abroad** to study and learn should be the standard;
- school and higher education **diplomas** should be recognised across the EU;
- knowing two **languages** in addition to one's mother tongue should become the norm;
- everyone should be able to access high quality education, irrespective of their socio-economic background; and
- people should have a strong sense of their **identity** as Europeans, of Europe's cultural heritage and its diversity.

In the December 2017 European Council Conclusions is described the vision of building a European Education Area on a combination of:

- strengthened Erasmus+ programme;
- an ambitious framework for European policy cooperation in education and training;
- support for Member State reforms through the European Semester; and
- better targeting of European funds.

In January 2018, the Commission presented a first package of measures, for the European Education Area, addressing:

- key competences for lifelong learning;
- digital skills; and
- common values and inclusive education.

In its Communication on Building a stronger Europe: the role of youth, education and culture policies, the Commission has brought forward a **second package of initiatives**. in which highlights the important role played by education in building the future of Europe.

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### Higher education policy

Higher education institutions are crucial partners in delivering the European Union's strategy to drive forward and maintain sustainable growth. EU activities are designed to bring an additional international dimension to studying, teaching, researching or making policy in higher education.

In 2017, at the Gothenburg Social Summit, the European Commission laid out its vision for 2025 of a European Education Area in which the free movement of learners is guaranteed:

To take forward this work, the European Commission is currently working on three key priorities to boost mobility and student exchanges for all:

1. A Network of European Universities
2. The automatic mutual recognition of diplomas
3. A European Student Card

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The European Commission works closely with policy-makers to support the development of higher education policies in EU countries in line with the Education and Training 2020 strategy. The renewed EU agenda for higher education, adopted by the Commission in May 2017, identifies four key goals for European cooperation in higher education:

- tackling future skills mismatches and promoting excellence in skills development
- building inclusive and connected higher education systems
- ensuring higher education institutions contribute to innovation
- supporting effective and efficient higher education systems.

In particular, the European Commission supports:

- the exchange of good policy practices between different countries through the ET2020 higher education working group;
- the Bologna Process, designed to promote the internationalisation of higher education in Europe.
- the development and use of mobility and recognition tools, such as the ECTS system and the Diploma Supplement, to increase transparency and facility exchanges in Europe.

In the context of the European Education Area, the European Commission has taken a number of further initiatives:

- the concept of Networks of European Universities brings a major change to higher education practices, through integrated curricula and mobility, thus fostering quality, excellence and innovation;
- the proposed Council recommendation on automatic mutual recognition of higher education and school-leaving diplomas helps to remove barriers to student mobility within Europe;
- the future European Student Card will facilitate the secure exchange of student information and reduce administrative burden for higher education institutions, serving as a concrete example of the emerging European Education Area.

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### **The ET 2020 Working Groups**

Working Groups are designed to help Member States address the key challenges of their education and training systems, as well as common priorities agreed at European level. As part of the Open Method of Coordination in Education and Training (the ET 2020 cooperation framework), the Commission and Member States cooperate in Working Groups.

The focus of the Working Groups is to help the Member States in furthering policy development through mutual learning and the identification of good practices in education and training.

Following their mandates, Working Groups must deliver outputs linked to the objectives of the European Policy Cooperation (ET2020). It helps them to gather and disseminate knowledge, as well as provide and receive advice and guidance for policy reforms at national level.

The framework is based on a lifelong learning approach and designed to cover learning in all contexts – formal, non-formal and informal – and at all levels: from early childhood education and care and school education, through to higher education, vocational education and training and adult learning.

The [Education and Training Monitor](#) annually monitors Member States' progress towards the ET 2020 objectives and benchmarks. This analysis feeds into the evaluation of broader socio-economic progress by Member States within the European Semester. Consultation and cooperation activities are taking place, with stakeholders, including civil society as well as business and social partner organisations, such as the European Education Summit and the Education, Training and Youth Forum. Funding is available for policy support activities and innovative projects through the Erasmus+ programme.

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### **Teaching, learning and digital change - Key messages from the Working Group on Digital Skills and Competences 2016-2018**

The Working Group on Digital Skills and Competences, ran between February 2016 and July 2018, looked at how education systems and learning is impacted by the digital transformation of the economy and society. The mandate of the group, centred on the following questions:

- how can education systems support the development of digital skills and competences to prepare learners of all ages for the labour market and for participation in society?
- how is digital transformation changing learning and teaching and how can technology best support innovative, active and learner-centred pedagogies?

The group published key policy messages and worked on a number of research outputs, tools and frameworks on digital education, notably: the new SELFIE tool for schools (the self-reflection tool for digitally capable schools), the Digital Competence Framework for Educators (DigCompEdu) with the mix of skills needed by educators in using technologies, the Digital Competence Framework for Citizens, and the revision of the definition of digital competences in the EU framework on key competences

The group's Peer learning activities (PLAs) covered topics like: Bring Your Own Device Policies (Hamburg), Coding and Computational thinking (Helsinki), Learning Analytics (Brussels), Higher education in the Digital Age (Malta), Working in partnership to tackle the digital skills gap (Belfast), Education 4.0 - Mobile Learning (Vienna), Digital assessment (Tallinn), Innovative, open and digital higher education (Zagreb), Digital resources (Paris).

### **Summary of the core themes in the WG**

#### ***Technology supporting pedagogies***

- Encourage and support digital pedagogies, rather than the mere use of tools and technologies. Pedagogical goals and priorities should be a leading factor.
- Supporting the active participation of students through personalised, collaborative and project-based learning.
- Monitoring the impact of digitalisation on student experience and learning outcomes.
- E-textbooks providing interactive and personalised learning, allowing individualisation and differentiation of teaching.
- Assessment: transitioning from knowledge-focused to competence-focused learning. Digital assessment as opportunity for personalisation and flexibility.
- Potential of Learning analytics for improving the quality of teaching and learning, with attention to privacy and ethical questions.

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***Organisation-wide approach towards digital change in education***

- Holistic, organisational approach to digital change as key driver for digital education.
- Planning for innovation and change in terms of pedagogies, infrastructure and institutional strategy.
- Combination of top-down and bottom up approaches in integrating digital devices in education.
- The SELFIE tool, developed by the Commission can help schools to further embed technology for teaching and learning by reflecting on their digital policies and practices and developing organisation-wide strategies.

***Effective partnership and cooperation***

- Ecosystem of partnerships between formal and non-formal education, governments, industry, civil society, cooperation between policy-makers, local and regional authorities, private sector, non-formal education and NGOs, collaboration between educators and industry to tackle the digital skills gap in the labour market.
- Recognition and validation of open online learning to enhance the learners' experience, to encourage new learning opportunities.
- Working with research and evidence-based policy making. to bring together worlds of educational research on digital education and policy making.

***Teacher education and capacity building***

- Teacher competence and confidence in using digital technologies in a pedagogically meaningful way. Teachers need support and training on the opportunities and challenges for meaningful and critical integration of digital technologies including practical examples of technology-enhanced teaching.
- Teacher training on technology use from a pedagogical viewpoint and on specific digital competences, with priority to flexible approaches for teacher training, overcoming concerns regarding technology use.
- Dedicated programmes needed to scale and support innovative teaching practice within higher education institutions.

***Digital resources, equity and inclusion***

- To ensure that digital transformation in education benefitted all students equally and did not become a factor of exclusion and marginalisation.
- Female students engaged in ICT studies and careers need for mentoring, female role models and dedicated activities.
- Equity in accessing devices, digital resources and high speed internet connection is also vital. Major differences in access can be found between and within European countries.
- Paper and digital tools can be used to mutually reinforce teaching and learning practices. Educators need guidance and opportunities to find and acquire relevant learning materials and tools in terms of language, age group and subject needs. The landscape of educational publishing is changing with publishers moving towards more innovative, developing new business models.

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The Commission's Digital Education Action Plan (January 2018) highlights the urgent need for education and training systems to address the digital skills gap and ensure that all citizens benefit from the opportunities of digital transformation.

The DELTA group, as successor of the Digital Skills and Competences Working Group, group will continue to have a cross-sectoral and life-long learning approach to digital education.

- Help to enrich the learning experience.
- Help students to learn how to use technology in creative, collaborative and proactive ways.
- Help educators, to support their teaching practice by technologies by new ways to collaborate.
- Help educational institutions and the system level, to improve internal processes, collaboration and communication by technologies including parents.

***Main concrete issues to be addressed:***

- Addressing the development of digital competences at all levels of learning, including non-formal and informal, in response to the digital revolution.
- Fostering transparency, quality assurance, validation and by recognition of skills and qualifications, including those acquired through digital, online and open learning resources, as well as non-formal and informal learning.
- Promoting the use of ICT with a view to increasing the quality and relevance of education at all levels, the availability and quality of open and digital educational resources and pedagogies, in cooperation with European open source communities.

***Expected Outputs:***

- supporting the implementation of the Digital Education Action Plan with regular discussions and progress reports on the 11 initiatives at working group meetings;
- supporting the scaling up of the SELFIE self-assessment tool as foreseen in the Digital Education Action Plan;
- compendium of innovative practice and policies in digital education (case studies, examples from all phases of education);
- guiding and giving input on European Commission research and frameworks on digital education and digital competences;
- key messages for policy makers following peer learning activities.

**Priority themes recommended for discussion within the group:**

**Making better use of digital technology for teaching, learning and assessment**

- Change management in educational institutions and support for educational leadership; success criteria and influencing factors.
- Digital teaching tools and resources: Open Educational Resources and Free and Open Source Software; concerns around interoperability and lock-in.
- Recognition of prior learning, validation, credentialing and digital badges: bridging learners' educational paths.

***Developing relevant digital competences and skills for the digital transformation***



- Supporting teachers' pedagogical digital competence and confidence in using technology to improve teaching and learning; technology supporting communication, collaboration and exchange in the organisation, including virtual exchange of educators.
- Improving computational thinking (including teacher training and assessment) and digital competence, and the links between digital and entrepreneurial competences.
- Good practice and innovation in digital well-being, cyber-security education and digital citizenship.
- Assessing the impact of digital education strategies at national and regional level

### ***Trends and foresight:***

- evaluation of digital technology use in education - cost-benefit analysis.
- exploring trends and emerging themes: eg big data, robotics, Artificial Intelligence, Augmented Reality and Virtual Reality, and gaming, the role of Makerspaces in educational practice and systems, innovation in digital assessment.
- using data to improve teaching and learning; personalised learning; learning analytics; data protection and privacy issues in education.
- changing learning spaces for innovative and digital educational approaches, co-creation, collaboration and learner-centric teaching and learning.
- STEM and VET 4.0; education and training in informatics.

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