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STATEMENTS on 'Learning in the digital age'

EUNEC Seminar

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EUNEC

EUNEC is the network of education councils in the European Union. EUNEC brings together the expertise of advisory bodies and of the stakeholders and experts who are involved in the national/regional advisory processes. These advisory bodies give advice to the governments of the different European countries in the field of education and training.

1 Central questions

The seminar focused on three main questions:

- What is the impact of the digital revolution on the **profile of learners and on the nature of learning**? How to balance new opportunities and traditional concepts of teaching and development of youngsters?
- What use could and should education make of the **opportunities offered by the digital revolution**? Should education change radically its content and approaches and choose for digitalisation at all levels? How can education construct bridges between traditional subjects and pedagogical methods and the new technologies?
- What **provisions and requirements** are needed at the level of content and curriculum development, at the level of professionalism of staff members, at the level of school infrastructure?

2 Recent evolutions with impact on education and training

The context for learning has changed rapidly, both from the perspective of the learner as an individual and from the perspective of society. Digital technology has become an essential part of social life and of economy and business.

Yet digital technology is not fully utilised in education and training.

More than 60% of nine-year olds in the European Union go to schools without qualitative and up-to-date digital facilities (hardware infrastructure, software, high speed broadband and high connectivity). Only 25% of pupils are taught by teachers that are self-confident with ICT. 50% to 80% of teachers in the EU never use digital text books, exercise software, broadcast/podcast materials, simulations or educational games.¹

This could create a digital gap emerging between pupils with access to innovative, technology-based education and those who do not have these opportunities.

2.1 Shift in the profile of young learners

The profile of learners and their learning opportunities have drastically changed. Children and teenagers have easily access to an amount of information, using a.o. communication technology. It has become an essential and common part of their daily life. They use the technology as daily instruments without questioning, as an extension of their social life. It is part of their life style and identity. They use ICT to meet, to play, to date, to connect, to explore the world and to construct (multiple) identities. We consider them as digital natives.

Therefore ICT is considered to influence deeply the way children learn. ICT allows individuals to learn anytime, anywhere with any device. The traditional authority-based delivery model of schooling is turning into a discovery-based and social constructivist learning model.

- Learning is no longer a monopoly of the school as an institution. Learning **anywhere** at **any time** is a reality. Integration between formal learning environments and informal and non-formal settings needs to become a reality. In so doing, this process will question the traditional organization of a classroom and of a school.
- Learning tools have different appearances and have evolved far beyond traditional textbooks. Pupils use **different types of devices** to learn and to gather new information. The learning content becomes a social construction and becomes more mobile.
- New learning devices may also have an impact on learning attitudes and learning psychology, as demonstrated by Marco Kools. Youngsters are more and more aware of the fact that **learning is a social activity**. Discovering new insights is no longer the result of scholarship in the loneliness of a study room, far away from the real life. New and creative insights are a social construction, the result of a dialogue between peer learners and experts on the basis of information provided by the internet. Therefore learning becomes more and more learning in a concrete context (mobilizing information needed to resolve a concrete problem). The readiness to learn abstract, theoretical clusters of knowledge defined on the basis of the logic of "expertise" is weakening.
- The internet also changed the traditional interaction between teacher and learner from "classroom-based" teaching to "context-aware" personalized learning and to social learning. From a classical, traditional point of view the teacher is the expert who "owns" the knowledge, who corrects the pupils, rewards positive behaviour (classroom management) and who is responsible for the evaluation and

¹ See the European Commission Communication 'Opening up Education' and the accompanying Staff Working Document for all data used.

assessment of the pupils development. ICT offers the opportunity to **enhance the responsibility of all learners, including teachers as learners.**

- ICT enhances the opportunities for **“personalized learning”**, “learning experiences” adapted to individual development stages of students.
- The gaming industry as well as social media are based on another system of motivation and interaction. They use **appraisal by peers** and by the social group one wants to identify himself with as tools for learning and socialisation. The “likes” on a facebook page are a symbol of that development. Gaming industries put the spotlights on learning and development by **positive appraisal** of a well-defined sets of skills.

In this deep shift the central debate on learning goes far beyond the mastery of a specific software problem. These evolutions are changing the nature of learning. They are increasingly demanding for students: 21st century skills, deep learning and lifelong learning are required.

2.2 Economic and societal changes

This evolution in the functioning and sensibility of youngsters is a reflection of the **deep, radical and intrusive changes** in the economy and society evolving towards a knowledge based economy and a learning society. Creation, circulation, sharing and application of knowledge have become a fifth pillar of the economy besides the agriculture, the industry, trade and services. Responsive economies anno 2014 are economies based on learning to do things better (Stiglitz, 2014). Learning is at the heart of 21st century knowledge societies and the motor of economic development. We witness a global race between economies to attract the most talented workers. The level of competences needed goes beyond an ephemeral and superficial knowledge.

This is in a sharp contrast with the fact that 20 % of European adult citizens are low skilled while 90 % of the jobs require digital skills.

2.3 Increased educational needs

ICT and new technology can be an answer to the need for cost effective and high quality education systems.

The need for high level qualified citizens is behind the urge for stimulating more and more learners to attain higher education qualifications, or to prevent early school leaving, a.o. through the development of a sound vocational education and training system. The European Union translated both ambitions in the benchmarks related to the Europe 2020 strategy:

- by 2020, the share of early leavers from education and training should be less than 10%;
- by 2020, the share of 30-34 year olds with tertiary educational attainment should be at least 40%.

These ambitions have also counterparts: the massification of higher and vocational education and training. Massification could endanger individual coaching and enhance standardised learning approaches. It is difficult to find highly qualified staff to organize the learning trajectories.

Secondly, more students in higher education and in VET call for higher investments in the education system. In 2030, 414 million students are expected to attend higher education.

The cost for education for the individual is rising. Given these facts it is reasonable to search for more cost-effectiveness in learning trajectories.

Open courses provided by information technology open new perspectives to bridge budgetary restraints and specialised expertise. Thanks to the internet students can follow colleges of the most outstanding experts. New providers of learning are emerging besides the education system. Universities and institutions for higher education and lifelong learning should strengthen the integration of distance learning, open courses and blended learning.

3 Policy levers for a responsive education and training system

These developments question the main characteristics of the education and training systems. A **new learning concept** is emerging, and the technological and communication revolution is one of the key factors. Other important factors are a better understanding of learning psychology and the cognitive development of the learner, the crucial role of emotions and motivation, the biological bases of learning and the functioning of the human brain, social and cooperative learning and the impact of family characteristics. This research-based concept of learning should become more known and shared within the world of education policy and education practice. Therefore EUNEC prefers the term “innovative learning environments” and “innovative learning” as a better and more research-based terminology for the integration of ICT into the classrooms, labs and auditoria.

This would be consistent with the importance of any organization – school or national institute – seeking to integrate ICT, to answer the question why and how to integrate ICT into the teaching and learning processes. Such a process of discussion rests on teachers as professionals understanding and embracing the concept of reflective practice – of thinking about the rationale of a particular initiative or idea before implementing it.

The OECD Innovative Learning Project described the following main characteristics of adequate learning that should all be integrated in the learning environment and not just some of them.

- make learning central, encourage engagement and stimulate learner to understand themselves as learners (self-regulation);
- ensure that learning is social and collaborative;
- be highly attuned to learners motivations and emotions;
- be sensitive to individual differences in learning pace and prior learning.
- be demanding for each learner without excessive overload;
- use assessment consistent with its aims with a strong emphasis on formative feedback;

- promote horizontal connectedness across activities in the school and out-of-school learning.

The nature of learning and the implementation of innovative learning environments should be the starting point of curriculum reform and pedagogic renewal. Translating the consequences of the changing nature of learning into education policies is a central issue for education councils in the years to come.

4 Challenges for the education and training system

These developments challenge the traditional content and nature of learning in the formal education system. Technology functions also as an enabler for transformations and provides learning experiences that would not be possible without the digital technologies. But innovation of the learning concepts demands a rethinking of the organizational patterns that deeply structure schools: the single teacher in the segmented classroom, the traditional time management and time table, class groups based on the age of children, ...

Innovative learning demands for an integrated innovative approach at the **curriculum** level (content), at **organizational level**, at **teachers** level and at the **resources** level.

4.1 Content and curriculum

Pupils learn inside and outside the school. Information and communication technology offers a broad scope of learning opportunities in both formal and non-formal learning.

On the other hand it is obvious that all new information flows do not necessarily result in a broad and critical understanding of the reality or in professional attitudes and judgments. For this reason, recent curriculum reforms in different countries are focused on stimulating "deep learning". Deep learning is an approach and an attitude to learning, where the learner uses higher order cognitive skills such as the ability to analyze, synthesize, solve problems, and thinks meta-cognitively in order to construct long-term understanding. It involves the critical analysis of new ideas, linking them to already known concepts and principles so that this understanding can be used for problem solving in new, unfamiliar contexts. Deep learning entails a sustained, substantial, and positive influence on the way students act, think, or feel. Deep learning promotes understanding and application for life. Deep learners reflect on the personal significance of what they are learning. They are more autonomous. But they are also collaborative learners, with high meta-cognitive and learning skills. Deep learning is also about the development of the person (self-regulation and responsibility, perseverance, empathy, self-confidence, personal health and well-being, career and life skills), citizenship (global knowledge, sensitivity to and respect for other cultures, active involvement in addressing issues of human and environmental sustainability), communication and collaboration (communicate effectively orally, in writing and with a variety of digital tools; listening skills, work and learn in teams, social networking skills), creativity and imagination (economic and social entrepreneurialism, considering and pursuing novel ideas, and leadership for action). So this kind of learning is in essence interdisciplinary and inquiry-based. Technology-rich learning environments offer opportunities.

Curriculum construction should become more open allowing learners to mix educational resources, learning activities, and/or educational courses for different disciplines to meet their needs. This places learners in charge of their own learning and ensures that they will learn what they need to meet their personal desires and requirements.

From a traditional point of view a qualification was seen as lifelong guarantee of competences needed for sustainable integration on the labour market and social life. New learning paradigms redefine the perspective not only to a lifelong development but also to "on-demand" and "in-context" accreditation of qualifications, acquired in formal education and training but also in informal or non-formal contexts.

New methods could be developed integrating more than before self-assessment and peer or crowd-sourced assessment into the formal evaluation processes.

4.2 Innovative school organisations

The need for innovative learning environments with a full integration of ICT calls for rethinking the concept of school and classroom. The emphasis should be on learning units, not so much on institutional units. On the other hand schools remain very important places for learning, for meeting friends. They remain places par excellence in the social life of children. Indeed, the emphasis in the literature on the concept of communities of practice for reflective practice and lifelong learning for teachers further supports the importance of schools as one physical manifestation of such a community. Therefore the challenge for education policy in the years to come is to make schools more learning focused. Learners could be grouped in varying and more profiled, better mixed learner groups. The groups could vary according the specific needs of the course and subject.

4.3 Infrastructure and resources

ICT is of course more than the availability of hardware (which is increasing). It has also to do with connectivity, mobile devices, cloud applications, software and evidence based digital learning environments. The level and speed of connectivity are other preconditions for integrating ICT in education. Digital technologies evolve very fast and they require constant efforts to be updated in order to respond to increasing demands. The education system needs open access to digital resources/practices, digital tools, digital courses/classrooms via multiple devices, supported by cloud technologies and cloud infrastructure.

Providing such facilities requires huge investments from education and training institutions and public authorities. ICT infrastructure and tools are unevenly available in different schools, regions and countries. There are important disparities across languages, subjects and needs. This "financial gap" strengthens existing inequalities and increases the gap between teaching practices and ICT in society.

Even though the key for success depends foremost on an innovative climate in schools and on incentives from Member States, the EU also has also a role to play. What is the added value of a European digital agenda to this regard? The EU promotes best practices and supports exchanges across Member States. It can deliver benefits from cooperation

and support the deployment and availability of digital technology and content through financial support and stimulate public-private partnerships at a European scale.

Stimuli for different partners responsible to develop content are essential. This could create an open European market for digital content. These stimuli encompass

- a legal framework for producing, using, re-using and sharing educational contents (copyright, barriers to develop and implement innovative teaching and learning practices, re-use and sharing of contents);
- common standards supporting interoperability;
- public financial support by the EU for the development of content in different languages and in less popular subjects.

4.4 Teachers' competences to develop innovative learning environments

Teachers are the main actors in turning new technologies to rich and innovative learning environments. They need to reflect upon their evaluation and assessment practices related to informal learning. They need to lead the discourse on the redefinition of their roles from deliverers of knowledge to co-creators and developers of competences and leaders of learning. Teacher education and in-service professional development institutions need to work more closely together to promote innovative teaching methods and an extensive and integrated use of technologies in the overall context of a continuum of teaching and learning.

The integration of ICT in the learning process calls for a higher level of didactical and pedagogical competences of teachers. This impacts on the different aspects of the whole learning process: modelling and targeting the learning process to the developmental needs of the pupils, assessing the competences.

Flexible and collaborative approaches are gaining more attention. More team work amongst teachers offers opportunities for role differentiation (expert in development of courses, coach, managing learning processes, ...) and for more effective differentiated teaching of children and young people with a variety of needs. New learning practices such as distant teachers, peer teaching, flipped classrooms should be stimulated.