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EUROPEAN POLICY AND ICT DEVELOPMENTS IN LEARNING, 2015
A CHANGING SOCIO-ECONOMIC CONTEXT AND TECHNOLOGICAL ENVIRONMENT

Introduction: Complex Changes, accelerated transformation

Due to the coincidence of several transitional factors, the state of ICT in education and training is most complex, as are the European policies related to it. The previous two to three years have been characterized by intensive changes in the fields of ICT-enhanced learning, learning innovation, and open educational resources.

Important contributory factors were the hectic period of the European Parliament elections in 2014 and the medium-term planning processes in the EU, linked to the programme development and budgeting period of 2014-2020. As in many other fields, education, training, and youth included, complicated scenarios, concepts, and plans were elaborated in the think tanks of the European Commission and the policy-making bodies of the political parties.

This eventful period was accompanied by the finalization and presentation of comprehensive studies, reports, and papers prepared for the Commission by European think tanks, followed by academic and policy debates in the field of education. As interrelated streams, several analyses and observatory and foresight activities, and the presentation of results of strategic EU projects became available, and were disseminated and discussed in public forums, conferences, and seminars.

In parallel, several international organisations (OECD, UNESCO, EUA, the World Bank, and others) also published reviews and position papers on the themes of ICTs, learning innovation, and open education. Many national governments in Europe have also commissioned related strategic papers, studies, and periodic reports. With different perspectives, organizations in the corporate sector have also had a presence in the debates with their opinions and position papers. The increasing public interest towards open education in particular has generated countless articles in newspapers and journals, both in print and online.

The above activities have resulted in a continuum of papers, studies, statements, foresights, observatory reports, and project deliverables being presented and published in the last two years.

All these factors have initiated paradigm-changing transformations in recent years.

The ever-improving performance of mobile devices and the development of networking infrastructure have transformed the information society – ***generally outside institutional settings*** and often along unexpected pathways. This has lead to the rapid spread of cutting-edge technologies, resulting in a spectacular increase in demand for them and in their use. The changing notion of access, accompanied by the increasing volume and improving quality of digital content, and the radically transforming habits and expectations of users have engendered new interpretations concerning several related concepts and have repositioned the social impact of ICTs in learning.

The period 2012-2014 was therefore a critical, rapidly changing, and turbulent period for ICT-supported learning and e-learning, including distance education and in particular Open Education. ***In 2015, we are at a "meta-stable point" of the development-change curve.***

Socio-economic environment: The education – employment context

In a world where "complexity becomes the new reality" *(Conole, 2012)* a proper understanding concerning which skills drive economic activity is essential. Technological development does not necessarily translate into economic growth and, in particular, jobs. Success is increasingly linked to ways of thinking and has more and more to do with values: technological knowledge and global thinking should act in synergy in the changing, accelerated, interconnected, multilingual world. The emergence of low-cost models in education presents a challenge for all sectors, particularly for universities.

The development of ICTs and new tools, and their increasing performance levels, power, and affordability, coupled with permanently upgrading networking capacities, are rapidly transforming the information society. This frequently occurs along unexpected lines and with a great diversity of scenarios, often incorporating all the implicit contradictions and provisionality of such phenomena.

Currently, under the impact of uninterrupted economic turmoil, the interconnected disquieting policy scenarios, and the resultant disruptive effects on society, the emphasis is on recovering growth and competitiveness in Europe. The considerations of human aspects, the desires of society, and the demands of the public sphere are increasingly less emphasized in policies and are losing their place in economic decisions. This is also reflected in the approach and perspective of the renewing EU programme until 2020, education included, and in the approach of the new European Commission, which started its work in late 2014 under the leadership of Jean-Claude Juncker.

Enhancing education providers' job placement awareness, efforts for exit strategies from universities are becoming emphasized requests. Questions for the education sector such as how well training is translated into employment opportunities and how curricula can be translated into career guidance receive priority. Partnerships and apprenticeship programs are amongst the tools to be used much more often in order to overcome the existing discrepancies.

In the meantime, increasing attention is being devoted to the relationships between learning, living, and society, and to learning communities which extend beyond education, including the way learning is organized in different communities and spaces (intergenerational and cross-cultural, learning).

EU policy elements

While there is a growing public interest in and high demand worldwide for knowledge and education, and while the intensive social media movements are familiar with both the provider and user communities, the common issue of emerging skills deficit contributes to the critical public approach to education and training.

EU countries are responsible for their education and training systems, thus Union policies may support national actions and help address ***common challenges***, for example ageing

societies, skills deficits in the workforce, or global competition. The EU provides a forum for the exchange of best practices and the gathering and dissemination of information and statistics, as well as offering advice and support for policy reforms.

In the ***EU Education & Training 2020 Strategic Framework***, four common objectives have been identified:

- Making lifelong learning and mobility a reality;
- Improving the quality and efficiency of education and training;
- Promoting equity, social cohesion, and active citizenship;
- Enhancing creativity and innovation, including entrepreneurship, at all levels of education and training.

The ***Europe 2020 targets in education*** are to reduce the rate of early school leaving below 10% and to have at least 40% of 30 to 34-year-olds completing third-level education. The targets aim to reinforce educational improvements in the interests of enhancing employability and reducing poverty.

Technology and new modes of delivery can be part of the answer to the present problems in terms of both equity and excellence: by allowing people to learn anything anywhere; by letting universities concentrate on their areas of greatest added value; by offering a chance to rethink knowledge transfer at local, national, and regional levels; and by helping build capacity in emerging economies and developing parts of the world. *(Prats-Monné, 2015)*

Productivity, competitiveness, and innovation will have to grow, with fewer people being relied on. At the same time, in many Member States, education systems are still struggling to meet 21st-century expectations. Targeted policy action is needed to equip people with key transversal competences and to reduce low achievement in key basic competences.

The EU Education and Training Monitor 2014 identifies three main strands of policy levers that can help strengthen the impact of education and training systems: (i) improving the quality and inclusiveness of pre-primary and compulsory education by reaching out to the most disadvantaged; (ii) giving more attention to the teaching profession; and (iii) better exploiting the potential of innovative pedagogies and digital learning. Increasing the quality and relevance of qualifications and competences is a critical priority.

Facilitated by better transparency and recognition of learning outcomes, combining innovative pedagogies with an effective use of digital tools and content should boost education in terms of quality, equity, and efficiency. The existing European tools and initiatives are not wholly living up to their potential. *PIAAC (2014)* shows that education attainment levels do not correspond to the same level of learning outcomes across countries and it underlines the need to achieve a common understanding of quality, which is transparent across countries.

Among the medium-term strategic EU plans is the development of the ***European area of skills and qualifications***, which should support mobility for both work and education, employability, and quality education and the modernization of the education systems. The *Eurobarometer Study (2014)* reveals that a large majority of EU citizens (95%) consider that skills can be gained outside of formal education.

The European Commission's recent decision to move adult learning from DG Education and Culture to DG Employment raises questions about the Commission's commitment to lifelong learning. *(European Association for the Education of Adults EAEA, 2014)*

Writing about the Canadian higher education policy scenario, *Bates (2012)* summarises some relevant statements, of which most are valid in EU national environments as well. University online education is commonly constrained by the lack of national data and

strategic planning, of cross-jurisdictional collaboration, of convincing business models, and of economies of scale and resources. This limits the universities' ability to capitalize on the potential of digital technologies to improve uptake, quality, accessibility, return on investment, tactical innovation, and knowledge transfer. ***The ongoing strategic vacuum creates an environment that fosters weakness and duplication.***

Digital pedagogy

In the past decade, the environment of education has changed very quickly, with astonishing developments in the macro-factors of technology, globalization, and demography. Behind the various waves of reforms there has always been a change of paradigm. So far, education has mostly been following the "content delivery and assessment" model, with the main goal being the transmission of knowledge. Nowadays, technology is putting more and more tools in the learners' hands and education is becoming a service focussing on the learner, which provides much more freedom than earlier.

Eventually all "technology-enhanced learning" (e.g. integrating with mobile devices, augmented reality as a daily learning extension, context-driven learning, sensor-driven information, etc.) will become mere "learning". ICTs, meanwhile, avowedly support online learners in developing core 21st-century transversal-horizontal and soft skills such as communication, critical thinking, collaboration, time management, multi-tasking, maintaining a sense of well-being, and developing a sense of connectedness through the use of social media.

Research results on digital learners *(Garcia et al.)* reveal that although university students have a basic set of technological abilities, these do not necessarily translate into sophisticated skills in the use of other technologies or information literacy in general. Contradictions exist between the perception of technological proficiency and its use, which is much more restricted. Although access to and the use of ICT is widespread, the influence of teaching methodology is very decisive. For academic purposes, students seem to respond to the requirements of their courses, programmes, and institutions. There is a clear relationship between the students' perception of usefulness regarding ICT resources and the teachers' suggested uses of technologies. Despite dramatic increases in students' use of various technologies, their assumptions concerning how they might learn at university remain relatively static. These expectations appear to be influenced more by their prior experience of learning in formal situations rather than by their use of technology outside educational settings.

Starting in the second half of 2012, approaches towards ICT resources began, to some extent, to change. Centred on the movements of open educational resources (OERs) and massive open online courses (MOOCs), questions were raised on operational and management issues, querying the feasibility of the economic models of institutions. New stakeholder alliances emerged, supported by fresh social and economic demands and clusters of interests.

One unarguable general advantage of the OER/MOOC movements as far as the modernization of education is concerned is the increased awareness about and acceptance of ICT-enhanced, open, and flexible e-learning solutions, which, in many institutions, were previously not quite acknowledged as being integral parts of the learning process. Nowadays they have become impossible to ignore.

In the meantime, in the professional and academic think tanks, the systematic work, including the collection and analysis of data, mapping, and intelligent observations combined with justified analysis and validation, is slowly but substantially contributing to reaching a critical mass of reliable knowledge and relevant information about ICT use in education and training. Several elements are summing up, such as the experience on the technology side, the pedagogy dimension, the socio-economic aspects, institutional-structural issues, and the teachers' and students' behaviour, interests and characteristics. This process is helping to outline the scope of potential actions. A flexible formation of different clusters of scenarios can be observed, relying on the pool of experience, research results, and the analysis of case studies/practices – all increasingly making use of the powerful learning analytics tools.

According to *John Daniel (2015)*, ***new ways of doing assessments*** will have a huge impact on faculty members – there will be new ways of developing assessment processes; new ways of reviewing and marking assessments using machine intelligence and artificial intelligence; and new ways of connecting learning materials to assessment, permitting individualized learning and differentiated instruction.

Regarding the pedagogic challenges of the social web, we should note that the issue of advanced online course development, ***spontaneous knowledge management***, is emerging. The process of course development may frequently be too long and complex nowadays, whilst tutorial systems are also expensive, with the time of the instructor being the major cost. Students often use the social web very creatively and they build up wikis to replace LMS quite quickly. There is a demand for course design models that better control time and cost. This is linked to the desired paradigm change of using campuses in the right way with much stronger integration of online learning, applying various new sets of conditions.

It has been acknowledged that considerable ***differences exist between countries*** within the EU in several essential aspects. These may be related to socio-economic backgrounds and to differences in infrastructure development, government policies, the attitude and preparedness of the education and training sphere, the traditions regarding the openness of the sectors themselves, the use of the technology, the employment situation, the approach of stakeholders, and many other factors. General approaches and patterns at the basics, and similar pathways in elaboration and implementation may lead in different directions and to different places (both in policy and in ICT use).

An important interdisciplinary field connects the world of learning to the ***brain sciences*** and their anticipated ***contributions to the cognitive processes***. Better and deeper knowledge and responses to the question of how we actually learn (which is still a rather long-term endeavour) could greatly enhance the efficiency of ICT-supported education.

Notes on the open education movement

We can speak about the implications of transitions in approaches (openness), which may amount to changes in paradigm, not only for the use of ICT, but also for socio-economic-cultural processes and, in particular, business models.

An element inherent in the new MOOC platforms is their social component, with peer-to-peer interaction. This new dimension arises for two different reasons: (i) the explosion of the social dimension of the Web through Facebook and other means which transform the ways of acquiring and exchanging knowledge; and (ii) the necessity of replacing teacher-student

interaction with peer-to-peer interaction in order to facilitate mass teaching with tens of thousands of students following the same course.

To fulfil their goals, MOOCs require a pedagogical transformation: the students must learn by themselves while also becoming more active, exchanging knowledge and skills with their peers, and helping each other instead of passively listening to teachers (flipped learning). EPFL, in Lausanne, for instance, is progressively replacing its first-year theatre courses with MOOCs. At the same time, conventional e-learning modules will seldom fit into MOOCs and if their use is still necessary, they must be entirely rebuilt.

Two significant challenges concerning the role of MOOCs in higher education are prevalent. Firstly, the discussion on MOOCs has to date occurred mainly in the mainstream media and in professional publications. Although some peer-reviewed articles on MOOCs do currently exist, the amount of available research is generally limited. Secondly, the vast amount of research available in online and distance education portals has largely been ignored by the mainstream media and MOOC providers alike. Paying greater attention to what is already known about learning in online and virtual spaces, to how the role of educators and learners is transformed in these contexts, and to how social networks extend a learning network will enable mainstream MOOC providers and their partners to make evidence-based decisions in favour of educational reform. *(Siemens 2013)*

A slowing down of the open education movement can be observed from the second half of 2013, as evinced by the continued absence of coherent progress and processes, and the institutionalization of OERs and, in particular, MOOCs. Genuine national efforts for the support and recognition of such resources and courses are rare. Enthusiastic foresights, the extrapolation of certain – unquestionably valuable – changes to global scale, and the expected transformative impact dominate the information available. A similarity with the initial hype concerning ICT-enhanced and e-learning is to be found.

Disbelieving views even say that MOOCs represent little more than an elaborate and expensive marketing campaign in today's globally competitive student-acquisition market.

The COL-UNESCO report prepared for the World OER Congress in June 2012 admits that whilst there appears to be a great interest in OER all over the world, different regions face different obstacles in its adoption. Only a few explicit OER policies exist and there is apparently some confusion regarding an understanding of the concept and potential of OER; it is thus there is an ongoing need for further advocacy and information-sharing to motivate countries and institutions to harness OER.

MOOCs can provide a boost to meaningful research on human learning – very large samples are involved and the data collected from MOOCs and MOOC platforms is harvested and analyzed. MOOCs and OER can significantly contribute to higher education in a consistent, efficient, and economical way due to their ability to distribute knowledge throughout the world. As *Tait (2014)* emphasises, MOOCs have captured the imagination of not only many millions of learners, but also politicians, funding and philanthropic agencies, and even venture capitalists, in ways that open universities may have previously felt was solely their prerogative.

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