TEXTS ADOPTED

P8_TA(2018)0485

Education in the digital era: challenges, opportunities and lessons for EU policy design

European Parliament resolution of 11 December 2018 on education in the digital era: challenges, opportunities and lessons for EU policy design (2018/2090(INI))

The European Parliament,

– having regard to Articles 165 and 166 of the Treaty on the Functioning of the European Union,

– having regard to the Charter of Fundamental Rights of the European Union, and in particular Article 14 thereof,

– having regard to Article 2 of the Protocol to the Council of Europe Convention for the Protection of Human Rights and Fundamental Freedoms, concerning the right to education,

– having regard to Decision (EU) 2018/646 of the European Parliament and of the Council of 18 April 2018 on a common framework for the provision of better services for skills and qualifications (Europass) and repealing Decision No 2241/2004/EC[1],

– having regard to its resolution of 12 June 2018 on modernisation of education in the EU[2],

– having regard to its resolution of 14 September 2017 on a new skills agenda for Europe[3],

– having regard to its resolution of 19 January 2016 on skills policies for fighting youth unemployment[4],

– having regard to its resolution of 9 September 2015 on empowering girls through

---

[1]   OJ L 112, 2.5.2018, p. 42.
[2]   Texts adopted, P8_TA(2018)0247.
[3]   OJ C 337, 20.9.2018, p. 135.
[4]   OJ C 11, 12.1.2018, p. 44.

education in the EU[1],

– having regard to its resolution of 8 September 2015 on promoting youth entrepreneurship through education and training[2],

– having regard to its resolution of 15 April 2014 on new technologies and open educational resources[3],

– having regard to the Council recommendation of 22 May 2018 on key competences for lifelong learning[4],

– having regard to the Council conclusions of 22 May 2018 on moving towards a vision of a European education area,

– having regard to the Council recommendation of 22 May 2017 on the European Qualifications Framework for lifelong learning and repealing the recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning[5],

– having regard to the Council conclusions of 30 May 2016 on developing media literacy and critical thinking through education and training,

– having regard to the Council recommendation of 19 December 2016 entitled 'Upskilling pathways: new opportunities for adults'[6],

– having regard to the Council conclusions of 27 May 2015 on the role of early childhood education and primary education in fostering creativity, innovation and digital competence,

– having regard to the Council conclusions of 20 May 2014 on effective teacher education,

– having regard to the Council recommendation of 20 December 2012 on the validation of non-formal and informal learning[7],

– having regard to the Council resolution of 28 November 2011 on a renewed European agenda for adult learning[8],

– having regard to the Commission communication of 17 January 2018 on the Digital Education Action Plan (COM(2018)0022),

– having regard to the Commission communication of 30 May 2017 on school development and excellent teaching for a great start in life (COM(2017)0248),

---

1   OJ C 316, 22.9.2017, p. 182.
2   OJ C 316, 22.9.2017, p. 76.
3   OJ C 443, 22.12.2017, p. 31.
4   OJ C 189, 4.6.2018, p. 1.
5   OJ C 189, 15.6.2017, p. 15.
6   OJ C 484, 24.12.2016, p. 1.
7   OJ C 398, 22.12.2012, p. 1.
8   OJ C 372, 20.12.2011, p. 1.

–   having regard to the Commission communication of 2 May 2012 on a European strategy for a better internet for children (COM(2012)0196),

–   having regard to the Commission communication of 10 June 2016 on a new Skills Agenda for Europe (COM(2016)0381),

–   having regard to the Commission communication of 7 December 2016 on improving and modernising education (COM(2016)0941),

–   having regard to the opinion of the Committee of the Regions of 30 November 2017 on modernising school and higher education[1],

–   having regard to the report of the European Centre for the Development of Vocational Training of 9 March 2018 entitled 'Skill needs anticipation: systems and approaches. Analysis of stakeholder survey on skill needs assessment and anticipation',

–   having regard to the Commission's 2017 policy report entitled 'DigComp 2.1: The digital competence framework for citizens: With eight proficiency levels and examples of use',

–   having regard to Rule 52 of its Rules of Procedure,

–   having regard to the report of the Committee on Culture and Education and the opinion of the Committee on Industry, Research and Energy (A8-0400/2018),

A.   whereas, with technology developing at an accelerating rate, the digital society and economy are now a fact of life, meaning that digital skills are essential for the successful professional realisation and personal development of all citizens;

B.   whereas digital competence is a key competence for lifelong learning, as defined in the Reference Framework annexed to the Council recommendation of 22 May 2018;

C.   whereas the innovative capacity of technology is conditioned, inter alia, by critical thinking, the level of people's digital and creative skills, and the quality and reach of internet connectivity;

D.   whereas a basic knowledge of digital technologies is vital for completing essential administrative and everyday tasks;

E.   whereas it is estimated that approximately half of the current jobs worldwide – and 30 % in the European Union – will disappear over the next 25 years[2], with the emergence of new professions requiring advanced digital skills;

F.   whereas digital skills, which go well beyond the requirements of the labour market, offer people better opportunities to participate in the life of society, both today and in the future, facilitate information and cultural exchange, and give people a greater say in political decision-making;

1   OJ C 164, 8.5.2018, p. 24.
2   http://eskills-scale.eu/fileadmin/eskills_scale/all_final_deliverables/scale_digitalisation _report.pdf

G.   whereas it is essential to reclaim the internet as a common good and promote active e-citizenship;

H.   whereas the technological transformation across industries means that digital tools are frequently used even in traditionally non-technical professions, with 9 out of 10 jobs in the near or immediate future estimated to require digital skills;

I.   whereas currently 44 % of the EU population aged between 16 and 74 lack basic digital skills and 19 % have no digital skills at all, with substantial disparities across the Member States, a situation that risks creating a new social divide;

J.   whereas the importance of digital skills, the skills gap, which is particularly significant between men and women, generations and different social groups, and disparities in digital skills across the Member States demand a joined-up policy response;

K.   whereas it is essential that educational institutions prepare pupils and students to confront the social and economic challenges brought about by rapid technological and social developments, by equipping them with the appropriate skills to adapt to the challenges of the digital world;

L.   whereas access to and the use of the internet and of technological and digital equipment have transformed social behaviour and relationships, particularly among the younger sections of society;

M.   whereas the goal of ensuring that by 2025 all schools in the EU have access to internet connections with download/upload speeds of 1 gigabit of data per second has yet to be reached;

N.   whereas excessive use of technological and digital equipment, such as computers and tablets, can cause problems related to health and well-being, including sleep deprivation, a sedentary lifestyle and addiction;

O.   whereas digital learning strategies also need to take into account research on the detrimental effects that early use of digital technology may have on the development of young children's brains;

P.   whereas digital technologies should be an integral part of a learner-focused, age-appropriate approach to education and can offer new and innovative approaches to teaching and learning; whereas it is vital to maintain personal contact between students and teachers and to prioritise the well-being and healthy development of children and adult learners;

Q.   whereas technologies should be better used to support new pedagogies that focus on learners as active participants with tools for inquiry-based learning and collaborative workspaces;

R.   whereas basic education in cyber hygiene, cyber safety, data protection and media literacy must be age- and development-oriented in order to help children become critical learners, active citizens, internet users and shapers of a democratic digital society, make informed decisions, and be aware of and able to counter the risks associated with the internet, such as online disinformation, harassment and personal data breaches; whereas cybersecurity-related teaching programmes should be introduced in academic and

vocational training curricula;

S. whereas quality, innovative digital learning can be captivating and interactive, thus complementing lecture-style teaching methods and providing platforms for collaboration and knowledge creation;

T. whereas we are seeing the growing commercial use of education by large digital companies, which are trying to influence teaching practices by introducing equipment, software and educational resources or providing training for teachers;

U. whereas, to better deliver on the promise of technology, Member States need effective strategies to build teachers' capacity and policymakers need to do more to build support for this agenda;

V. whereas public libraries participate in the common effort to familiarise citizens with digital skills, by providing open services for digital support in a social and helpful environment;

W. whereas adults who are out of work or in jobs that do not require digital skills tend to fall quickly behind their more digitally proficient peers, thus hampering their job prospects and exacerbating social and economic disparities;

X. whereas the progressive digitalisation of work will result in the disappearance of many professions and an increase in unemployment; whereas the new professions that will emerge with digitalisation may compensate for some of the jobs lost;

Y. whereas digital technologies can facilitate access to knowledge and learning and their use enables all training facilities at various levels to be easily accessible and inclusive;

Z. whereas without appropriate and targeted policies, older people and people with disabilities are likely to suffer the most from the digital transformation;

AA. whereas women make up only 20 % of professionals in the field of science, only 27 % of engineering graduates[1] and only 20 % of computer science graduates[2]; whereas the share of men working in the digital sector is 3.1 times greater than the share of women; whereas only 19 % of workers in ICT have a female boss, compared with 45 % of workers in other sectors;

AB. whereas lifelong learning opportunities tend to be far more available to already highly-skilled workers[3];

AC. whereas ongoing monitoring and assessment of digital skills proficiency both in organisations and among individuals is a prerequisite for effective policy delivery;

AD. whereas mastering basic transversal skills, such as numeracy, critical thinking and social communication skills, is a fundamental prerequisite for the acquisition of digital skills and competences;

---

[1] European Commission, Education and Training Monitor 2017.
[2] European Commission, *Women in the Digital Age*, Luxembourg, 2018.
[3] European Commission, Joint Employment Report 2018.

1.	Underlines that digital skills acquisition requires a coherent, lifelong-learning approach anchored in formal, non-formal and informal education settings, with a policy response and targeted interventions appropriate to the needs of different age groups and learners;

2.	Underlines the potential of digital technologies to support a shift towards more learner-centred pedagogical approaches if incorporated into the learning process in a planned and purposeful way; believes that learners need to be guided towards innovative, bottom-up practices of knowledge creation for genuine educational transformation to occur;

3.	Stresses that a transformation of the educational and training systems at all levels is necessary to make full use of the opportunities offered by information and communication technologies and the media and to develop the skills and competences required to meet the demands of the society and labour market of the future; reiterates that such a transformation must continue to guarantee the right to personal fulfilment, strike the right balance between the relevant digital skills and life skills, and support individual resilience, critical thinking and innovation potential;

4.	Believes that educational institutions cannot afford to neglect the all-round education of their students, involving the cultivation and development of a critical and holistic outlook that enables them to assert themselves as active citizens; understands that critical thinking cannot be strengthened only by teaching digital skills and that all-round education is also required;

5.	Stresses that while it is essential to increase learners' basic and advanced digital skills, traditional and humanistic skills should nevertheless continue to be nurtured;

6.	Recalls that, as the Commission acknowledges in its Digital Education Action Plan of January 2018, the necessary adaptation of educational institutions to new technologies and innovative pedagogical approaches should never be seen as an end in itself, but rather as a tool for improving the quality and inclusivity of education;

7.	Stresses, while recognising the need for more digital skills, that the impact of digital technologies on education is not at present easy to assess, meaning that it is vital to take into account neurological research into the effects of digital technology on brain development; calls, therefore, for investment in unbiased and interdisciplinary research into the various impacts of digital technologies on education, linking education sciences, pedagogy, psychology, sociology, neuroscience and computer science so as to achieve as deep an understanding as possible of how the minds of children and adults are responding to the digital environment, with a view to maximising the benefits of the use of digital technology in education and minimising its risks; stresses the need to promote responsible use of digital tools that protects the physiological, neurosensory and behavioural development of learners, particularly during childhood, and strikes the right balance in the daily use of technological and digital equipment, both in educational institutions and in private life;

8.	Regrets that while the use of online and mobile applications and new technologies, such as the internet of things, has become more widespread than ever, citizens, in particular minors, are often unaware of the risks associated with the use of the internet and ICT tools, such as personal data breaches, pervasive end-user tracking and cybercrime; calls, therefore, on Member States to assign an appropriate role to data protection and basic

cyber hygiene in school curricula;

9. Calls on the Member States, the Commission and educational institutions to improve children's safety online and address the issues of cyberbullying, exposure to harmful and disturbing content, and other cybersecurity threats by developing and implementing prevention programmes and awareness-raising campaigns; encourages the Member States to further promote the #SafeInternet4EU campaign;

10. Stresses that in order to achieve better learning experiences and outcomes, digital tools must be adapted to the needs of students, and that this is a way for students to become active citizens and not merely passive consumers of technology;

11. Regrets that despite the potential of digitalisation for enhancing and fostering different and personalised learning methods, the impact of digital technologies on education itself has been limited; expresses its concern, in particular, that investments in ICT in schools and training centres have not yet resulted in the transformation of educational practices hoped for; recalls that schools and other learning environments need to support all students and learners and respond to their specific needs by developing appropriate and effective measures to foster digital skills, particularly among students with disabilities, minority groups, migrant communities, early school leavers, the long-term unemployed and the elderly; believes that such support can be facilitated through the use of new technologies;

12. Notes the growing gap between men and women's participation in the digital sector with respect to education, career pathways and entrepreneurship; stresses that ensuring a gender-balanced approach to the promotion of ICT and digital careers is key, and that more female students and women should be supported in pursuing a career in the digital field; underlines the importance of ensuring digital literacy and the participation of women and girls in ICT education and training; encourages the Member States to introduce age-appropriate ICT education in the early stages of school, with a particular focus on measures to overcome the digital gender gap and provide girls with alternative avenues for access to STEAM subjects, since gender stereotypes surrounding these subjects and the lack of female role models tend to be a barrier to access for girls; considers that a fine-tuned Women in Digital Strategy, coupled with the Commission's forthcoming action plan to reduce the gender divide in tech, could help to boost efforts in this field;

13. Stresses that the lack of digital equipment and connectivity in schools across Member States has a detrimental effect on the digital skills education of students and the availability of digital teaching tools; calls on the Member States to make substantial public investments to provide all schools with high-capacity broadband and to make use of existing EU programmes for this purpose, notably the Connecting Europe Facility, which can support the physical infrastructure of high-capacity broadband networks, and the WiFi4EU voucher scheme; emphasises that connectivity efforts and funding should be focused in particular on rural and disadvantaged areas, and the outermost and mountainous regions;

14. Points out that education and training institutions require assistance from the Union and Member States, as well as close cooperation between all stakeholders, industry, local and regional authorities, communities and civil society, to develop their ICT and media education in accordance with their specific pedagogical approach and to make the

difficult transition to a more digitalised learning environment; underlines, in this regard, the need for a whole-school and interdisciplinary approach towards digital change in education;

15. Stresses that teachers and trainers should be at the core of the digital transformation and therefore require adequate initial preparation and continuous training, which must include modules on age- and development-oriented teaching practices; insists that this training requires time and should not come as an extra task on top of their daily activities; highlights that, even more than the teaching of other basic skills, such as numeracy and literacy, digital skills teaching requires teachers to update their knowledge and skills on a continuous basis; argues, therefore, that teachers need suitable, flexible and high-quality continuous professional development that corresponds to their needs; takes a positive view, in this regard, of the use of European online platforms to increase professional development opportunities and encourage the exchange of best practices;

16. Notes that those entrusted with education now have increased responsibilities owing to the increased use of digital applications in school work; considers that they too must be involved in the learning process and the use of technology, since if they do not have the necessary digital skills, it will be more difficult to involve their students in the learning process, which may result in more social exclusion;

17. Supports and encourages the implementation of measures concerning the digitalisation of administrative processes in schools in order to further reduce the administrative burden at all levels;

18. Encourages the Member States to promote and finance regional and local initiatives that support quality teaching practices aimed at enhancing innovation;

19. Stresses the value of school autonomy in achieving innovation in education;

20. Calls on the Commission and the Member States to offer appropriate guidance on the legal application of exceptions to copyright law in the educational sphere and straightforward access to licences for public, non-profit-making establishments in formal and informal education; takes the view that teachers and pupils need security when using digitally accessible resources and imparting and learning skills; recommends, in this regard, that the Commission provide guidance for educational institutions, educators and students to that end;

21. Points out that the lack of digital tools for mobile students can undermine the quality of educational experiences in Europe; encourages the Commission to continue its European Student Card and Erasmus without Paper pilot initiatives, with a view to launching them during the next multiannual programming period; calls on the Member States to make responsible and effective use of Union financial support and to promote funding opportunities among the wider public and educational institutions, with a view to making access to digital learning content, tools and solutions a reality for all;

22. Points out that, in line with the lifelong learning approach required for digital skills, governments, in cooperation with stakeholders such as companies and civil society organisations, and through both formal and non-formal settings, should ensure a sustainable digital transformation with nobody left behind;

23. Highlights that inclusiveness and innovation should be the leading principles for education and training in the digital age; believes that digital technologies should not reinforce existing inequalities, but instead be used to close the digital divide between students from different socio-economic backgrounds and regions of the EU; stresses that an inclusion-driven approach must take advantage of the full potential of the resources provided by new digital technologies, including personalised education and partnerships between educational institutions, and, in so doing, can enable access to quality education and training for people from disadvantaged groups and those with fewer opportunities and support the integration of migrants and refugees;

24. Stresses that the promotion of digital access in education does not necessarily imply equal access to learning opportunities and that, while technologies are becoming increasingly accessible, the acquisition of basic digital skills remains a barrier and the digital divide persists; points out that Eurostat data show that the digital divide is not closing and that 44 % of people in the European Union do not have basic digital skills[1];

25. Points out that the complex digital skills required for the efficient use of ICT depend on the acquisition of basic skills, that not everyone is on an equal footing, with major gaps remaining at basic levels and particularly affecting disadvantaged groups and a large number of adults, that more educated people are three times more likely to use the internet to acquire new skills and create new opportunities than those with lower levels of education[2], and that we run the risk of technology becoming a training tool for the privileged rather than an opportunity for all;

26. Stresses the need for a change in the institutional and pedagogical practices of schools and other learning environments, including non-formal learning settings, in order to make them more equitable by providing substantially diversified and in-depth support structures for all, in particular those belonging to groups at risk of exclusion, such as the unemployed, migrants, the low-skilled, those with disabilities and the elderly;

27. Recommends that Member States develop digital literacy programmes in Europe's minority and regional languages and introduce language technology training and tools in their school, university and vocational college curricula; stresses once more that literacy remains a significant factor and an absolute prerequisite for progress in the digital inclusion of communities;

28. Stresses that the Member States should provide the support that educational institutions need in order to improve the digitalisation of languages in the EU; recommends that schools across the EU make use of digital technologies to increase the use of cross-border educational exchanges, through video conferences and virtual classrooms; stresses that schools across the EU could benefit from cross-border access to digital content;

29. Underlines the key role played by libraries in providing citizens with digital services and making online learning and services available in a safe environment open to all; recommends, therefore, that these efforts be duly funded under European, national,

---

[1] Eurostat, 2016.
[2] Commission Staff Working Document of 9 October 2008 entitled 'The use of ICT to support innovation and lifelong learning for all – A report on progress' (SEC(2008)2629).

regional and local schemes, complementary to one another, and that libraries are given greater recognition for their essential role in developing media literacy;

30. Calls for a shift towards more non-formal learning and workplace training opportunities and insists on the need for high-quality, inclusive and well-resourced education and training systems; believes that opportunities for re-skilling and upskilling are essential, with relevant digital skills components mainstreamed in workplace training programmes and special training solutions for people working in small and medium-sized enterprises; stresses the importance of strengthening connections between education and employment and the role of lifelong career guidance and counselling in supporting access to suitable, flexible and high-quality training and career paths;

31. Stresses that traineeships in the digital sector can help students and young adults acquire practical digital skills on the job; welcomes, in this context, the new pilot project introducing Digital Opportunity Traineeships under Erasmus+ and Horizon 2020; calls for a renewed impetus in this direction under the new multiannual financial framework (MFF) programmes;

32. Recommends that Member States, in close cooperation with local communities and education and training providers, give adults with limited digital skills access to upskilling pathways, which provide them with the opportunity to acquire a minimum level of digital competence;

33. Calls on Member States, in collaboration with businesses, local and regional communities, education and training centres and civil society stakeholders, to identify existing skills gaps, expand digital and internet literacy, enhance media literacy, in particular among minors, and establish a high level of digital connectivity and inclusion;

34. Welcomes the participation of businesses in founding and funding schools;

35. Welcomes the establishment of strategic partnerships between academic and research institutions and public and private partners as part of Key Action 2 of the Erasmus+ programme, with a view to setting up ICT centres of excellence and fostering the development of technological start-ups;

36. Recalls that proper assessment and monitoring of digital skills is essential to achieve progress; welcomes the development of EU-level tools for organisations (e.g. the Digital Competences Framework and the Reference Framework on Key Competences for Lifelong Learning) and for individuals (e.g. SELFIE); insists, however, that effective digital skills assessment methods must be dynamic, flexible, constantly updated and tailored to learners' needs, and must also achieve much broader uptake across the Union at national, regional and local levels;

37. Calls on the Member States to work with the Commission to ensure that the SELFIE self-reflection tool is available in Member States' regional and minority languages;

38. Welcomes the Union's increased policy focus on digital skills and education, as evidenced notably by the Digital Education Action Plan, which builds on a number of successful small-scale policy initiatives, such as EU Code Week, the Digital Skills and Jobs Coalition, and the Sofia Call for Action on Digital Skills and Education; takes the view that the teaching of programming should be part of a broader educational approach

to information technology and critical and computational thinking;

39. Notes, however, that Union initiatives often emanate from different Directorates-General within the Commission, frustrating a coordinated approach to digital skills policy;

40. Supports the increased funding available for digital skills across the next generation of MFF programmes; insists on the need for the Commission to promote synergies across and ensure coordination between these programmes, including Erasmus+, Horizon Europe, InvestEU and Digital Europe, so as to maximise the effectiveness of funding for high-quality digital skills development and deliver lasting results for learners of all ages and backgrounds; stresses the need, furthermore, to set aside funding under these programmes and the European Structural and Investment Funds for the digitalisation of libraries, archives and museums to increase and improve their use in education and culture;

41. Emphasises the need for the Union to develop capabilities in areas such as artificial intelligence, big data, software engineering, quantum computing and web design; welcomes, in this context, the digital skills component of the Digital Europe programme;

42. Encourages greater synergies between Member States and the wider world in the field of internet education and active e-citizenship through various EU external action mechanisms and programmes, including Erasmus Mundus;

43. Highlights that open data and collaborative digital technology tools and methods can enable innovation in education and further develop Open Science, thereby contributing to the prosperity and entrepreneurial spirit of the European economy; points out, moreover, that the collection of data on digitalisation in education and training institutions and on the use of digital technologies in learning are vital policy-making inputs; recommends, therefore, that the Commission and the Member States collect data on the degree of connectivity of education and training institutions and the arrangements for issuing digitally certified qualifications and validating digitally acquired skills, which is an objective of the Digital Education Action Plan;

44. Regrets that no overarching digital skills strategy has been developed at EU level, while the implications of the digital transformation for the EU's internal market are clear; believes that disparities among Member States illustrate the need for such a strategy;

45. Emphasises that recommendations for a minimum level of digital competence to be acquired by students during their studies should be drawn up; calls, therefore, for the introduction across the Member States of a specific ICT module, for example based on the PISA ICT module, and for teachers to be involved in its design and implementation; stresses that the ICT module should be designed to ensure that educational establishments in Member States aim for the same level of digital competence, through ongoing assessment rather than a test-driven approach, and that any problems are pinpointed quickly; encourages Member States to share lessons and best practices, in particular in the area of educational innovation;

46. Believes that the Digital Education Action Plan should be viewed as the first step towards a fully-fledged EU strategy on digital education and skills based on a lifelong-

learning approach, which can provide both a more coordinated policy framework and simultaneously be adaptable to changing realities; calls, therefore, on the Commission to critically evaluate the 11 actions under the Plan, including their social inclusiveness, to prepare for the 2020 mid-term review; recalls that a proper review should imply a willingness to focus only on the best-performing actions, to jettison those that are not delivering and to develop new actions as required; stresses that enhancing digital skills through collaborations with non-formal education providers and in the harder-to-reach adult population is currently a glaring gap in the Plan;

47. Instructs its President to forward this resolution to the Council and the Commission.