Education and Learning

Digital Transformation in Learning for Active Citizenship

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Democracy and
Human Rights Education
in Europe

BLUE LINES

Federal Ministry for
Family Affairs, Senior Citizens,
Women and Youth

Co-funded by the
Erasmus + Programme
of the European Union

Preface:

Into Digital Transformation

The social, economic, cultural and political impact
of digital change in education and learning

Digitalisation is an essential part of our lives across all dimensions. Many people think that it is a technological process, i.e. it is mainly about computer servers, algorithms, Internet and the like. But that is only half of the truth. For example, it is difficult to separate digitalisation from almost all activities in our lives. When we shop online – are we online or are we shopping? When we play computer games – are we playing or are we at the computer? And when we are active in social media, we are both social and active in an electronic medium. Moreover, our health system is already digitised, the pollution of the planet is, to a growing extent, caused by digital technology, and activities such as navigating a car or collaboration in civil society are increasingly facilitated by digital technology.

   This example seeks to point out that what we ultimately understand by "digitalisation" depends very much on how we look at the topic. It is after all possible to engage in all the aforementioned activities without information and communication technology (ICT). In this sense, we prefer the term *digital transformation*, because it explains a social, cultural or economic process in which things are done seemingly differently – made possible by information and communication technology. In this sense, education for digital transformation is learning about social, economic and cultural processes and about understanding the differences caused by technology. As such, in further exploring the topic, it is important to:

1. Look at both the technology and the nature of economic, social and cultural activities, for example, what we do in different social roles as digital customers, digital activists, digital workers and digital citizens.

2. Take an interest in the difference that digitalisation brings to such activities. What is changing thanks to new technology? What impact does it have on society?

There is No Overly Complex Issue for Education

A lot of curiosity and increasing concerns regarding digitalisation today have to do with its 'engine room' - the fascinating global infrastructure of the Internet, its enormous costs and hunger for energy, Big Data, AI, and the increasing economic value of digital platforms.

In particular, the growth of new kinds of platforms, fuelled by digital business models successfully capitalizing on users, is a widely visible phenomenon of this new technological and economic configuration. Consequently, their users are at the same time subjects and objects of digital change. They experience the opportunities made available through new, platform-mediated forms of interaction, but also feel uncomfortable since they are also symmetrically affected in their role as autonomous subjects. The right to independent information, privacy and security are, from this perspective, not yet sufficiently respected in the digital sphere.

The migration of substantial parts of working and communication processes to the digital sphere during the last decades is also simultaneously a benefit and a challenge. One aspect is technical mastery – access to current technology and the ability to use it in a competent way. A more fundamental aspect is that the "digital self" is completing people's analogue identity. Their digital traces are accompanying people's lives with related consequences for their various social roles as private subjects, employees and citizens.

Feeling overtaxed by all the associated challenges and concerns is a bad prerequisite for learning and a bad basis for considering future personal and social decisions. It is high time for adult education and youth work to do something about this double-edged sword.

In particular, adult citizenship education has a lot of experience teaching complex social issues and could transfer its methodology and approach to the topic of digital transformation. We know, for example, that nobody needs to be an economist to be able to co-decide on political decisions affecting the economy. We also are capable of understanding the social impact of

cars, despite very limited knowledge of automotive engineering. Considering that it is possible to acquire knowledge about digital transformation, could we not even enjoy learning about Big Data, robotics, algorithms or the Internet of tomorrow similar to the way we passionately discuss political issues such as transport, ecology, or democracy? We should not, however, be blinded by the technical complexity of the digital transformation. It is important that we pay more attention to the social dimension, the intentions behind a technology, exploring its effects and regulations.

Although not familiar with all technical or legal details, most people intuit that it is ill-advised to give out personal information without consent. We suppose what the right to privacy should entail and what distinguishes conscious decisions from uninformed ones, and in our analogue world, we discourage the "used car salesmen" of our society from taking unsuspecting customers for a ride. After all, most of us have experienced the discomfort of having been deceived as a result of not understanding the fine print.

If we transfer this insight to a pedagogy of digital transformation, we must admit that we should also be willing to explore new aspects of the technical dimension such as data processing or the nudging mechanisms in online platforms. But that is not the only priority! The most important thing is that we know what our *rights* and *ethical foundations* are and how they relate to the new digital contexts and are able to act accordingly. These questions are not solely related to privacy and safety, as seemingly no aspect of social life is unaffected by digital transformation.

Using this foundation, we might further explore the potentials and risks of digitalisation in context, assessing its impact. Personal rights, for instance, entail privacy issues, but digital transformation has also led to new opportunities for co-creating, better information, or involvement of citizens in decision-making processes. On this basis, we are then able to define the conditions and rules under which certain digital practices should be rolled-out or restricted.

E*lectronic* communication has changed the character of *human communication* as a whole. There are fewer impermanent ideas or assertions that go undocumented, to later be searched and rehashed. This change is both positive and negative, for example from the perspective of an employee who may be judged based on past decisions which live forever online. Pedagogy might help people to better understand the risks and benefits associated with electronic communication.

In addition, it will be a creative challenge to imagine the technology we want to develop as a society and what will help us to initiate social, economic and cultural

changes in the future. In this regard, it is also important to develop a view towards the so-called 'skill gaps' and 'digital gaps' people may face when mastering digitalisation. What is the purpose of defining a gap; for whom is the gap relevant; in whose interest is it to argue the risk of gaps as opposed to their benefits?

Why Democracy and Rights-based Learning Makes the Difference

The essence of a definition of democracy and rights-based education can be found in the Council of Europe's Declaration regarding Education for Democratic Citizenship (EDC), which is "education, training, awareness-raising, information, practices, and activities which aim, by equipping learners with knowledge, skills and understanding and developing their attitudes and behaviour, to empower them to exercise and defend their democratic rights and responsibilities in society, to value diversity and to play an active part in democratic life, with a view to the promotion and protection of democracy and the rule of law" (CoE CM/Rec(2010)7).

Transferred to the context of learning about digital transformation, we extract three core questions from this:

1. *What digital transformation competence* – knowledge, skills, values and attitudes – do citizens need to understand the digital transformation in their society and how it affects them in their different social roles?

2. How are *fundamental rights and ethical foundations* related to the transformation? Where do they shift their nature, what weakens them and what kind of development strengthens their enforcement?

3. What *active civic competences* do citizens need to contribute to the transformation, including participation in relevant public discourses and decisions, self-organisation and social engagement, and the development of social innovations?

Stakeholders from many different sectors have high expectations in education. In particular, they demand from earning for active citizenship a better preparation of Europeans for big societal changes. Only if we implement ideals of democracy "by design" into digital progress will we create a *democratic* digital society.

Enjoy and Explore

This reader series aims to introduce selected key aspects of digital transformation to educators and teachers in formal, non-formal or informal education. Our perspective is *Education for Democratic Citizenship* and our main goal is to motivate you as educators in adult education and in youth work or other education fields to dive into the topics connected to digital transformation with curiosity and critical thinking as well as ideas for educational action. In other words: Nobody has to adore technology, but it is definitely worthwhile to become more comfortable with it. Digital transformation is a reality and as such, in principle, relevant for any specific field of education, any subject, or pedagogy.

Together we might work on a broader understanding of what digital literacy is and explore as educators and learners in lifelong learning processes how it affects our lives. With a strong aspect of democracy and human rights in lifelong learning, we should lay the foundations for a democratic digital transformation and empower learners to find a constructive and active position in this transformation.

We aim to provide basic insights into some of the various aspects of digital transformation as a basis for further exploration. They tackle the digital-self, participation, the e-state, digital culture, media and journalism and the future of work and education. In each of the publications we also present our ideas as to how education might take up this specific topic.

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1. Education, a Dimension of Digitalisation – Digitalisation, a Dimension of Education?

Does digital transformation in the field of education come along as just another change? A change similar to the other ones that during the past 25 – 30 years especially the formal education systems in Europe underwent, often under the external demands and pressures such as economy, skills gaps etc. The transformation of educational systems in Central and Eastern Europe after the fall of the iron curtain are although worth mentioning. In the field of higher education, the Bologna Process is an example of a big transition of the European universities resulting in harmonisation and a standardized model of learning. Also in adult learning in Europe we have faced several changes of headlines in the past 20 years.

Ongoing reforms in school systems in all European countries are often driven by reactions to the OECD PISA comparative studies. These have, among other things, established a system of strict benchmarking and resulted inter alia, in a quite competitive learning climate and a focus on STEM (science, technology, engineering, mathematics), in learning. There is also, in line with the lasting trend toward individualisation, a partially misunderstood competence orientation in education resulting in an over-focus on individual learning and individual competence development. Partially this contradicts the idea of social learning and the recognition of the social aspects in learning and how they are formulated in a perspective of lifelong learning, applying to youth work or in adult learning in the tradition of Grundtvig.

All in all, one could state that while formal education has been in the focus of political

reforms – the effect in the discourse about education has been a high orientation towards the formal education systems as such, which brings along difficulties for other fields such as non-formal education or the field of informal learning. These vitally risk Lifelong Learning being usurped by the logic and leading discourses of formal education, without accepting the inherent logic, scopes and professions of other forms of education.

Digital transformation is also not new for education. Concepts like the flipped classroom, the use of learning platforms, the development of MOOCs and activities of self-directed or supervised online learning have a long-lasting history of roughly 20 years and are not a result of COVID-19 alone. Even long before the Internet evolved into the medium of online distance learning, there were the so-called educational television/broadcast programmes, such as the Telekolleg in Germany to name one example. These served mainly the further qualification and training of adults and provided one of the conceptual foundations for e-learning.

In looking at the context of education for democratic citizenship and human rights education, there is lasting experience of cooperating in Europe and at the international level via the opportunities provided by Erasmus+ and other programmes. It needs to be noted that the field of international encounters has a lasting practice of digital cooperation, of blended and online learning, which was set up and in active use substantially earlier than in national, traditional learning settings. Even in the formal educational sector, European initiatives such as e-twinning and others were established earlier, providing a means for online cooperation and learning to a greater extent than in national arenas.

So if the premise, experience and concepts are there, why is the digitalisation of education and learning perceived by a big part of NFE, AE, VET and the youth fields as being such a fracture from the norm? It is undeniable that within education, other paradigms have changed. For example, with COVID-19, we've seen the resulting crash of the underlying educational concept (e.g. face to face learning, residential learning, etc.) or of the underlying business models (which was based on financial support for activities and participants).

The debates often rotate around the analogue educational concepts (and of the analogue oriented profession of educators) into digital ones, focusing very much on the processes of the lane change. But is digitalisation only a lane change? Our findings as presented in our studies of the DIGIT-AL project very much support the assumption that it is not a replace of the analogue sphere but has to be understood as a new reality entering and influencing our known analogue realities. Such education through, about and within the field of the digitalised realms also has an independent quality, with applying inherent logics, that probably are yet to be understood. As we cannot provide a conceptual answer, this reader about education reflects on several aspects that the authors identified as relevant for their contexts.

Daniela Kolarova reflects upon the transformations of learning and of learners in the field of EDC/HRE.

Elisa Rapetti explores different dimensions of the digital divide regards stuctural and pedagogigal aspects of education and learning.

Ramón Martínez examines competences development and how paradigms shift in competence-related learning. These reflections build towards how these impact the field of EDC/HRE in an economic environment where we have to learn to work, hopefully less, aside AI.

Ingūna Irbīte on the example of teacher trainings in Latvia provides an insight in how far digitalisation changes the learning of teachers as adult learners and how challenges for learning are related to education's internal and external environments. It provides an illustration and evidence bank regarding digital transformation in teaching/learning. Using the example of the COVID-19 situation in Latvia, she also explores the impact on digital learning in the country, documenting the process in its current socio-historic and post-COVID-19 outbreak contexts.

The contributions of Jöran Muuß-Merholz and Ramón Martínez ask for the specific question of digital didactics compared to the analogue frame of experiences we mostly work in in non-formal educational settings.

Ramón Martínez, Mike Coterell and Snežana Bačlija Knoch in the final chapter provide insights from digital tools supporting individual competence development in non-formal learning environments. The chapter flips the view from education into a perspective of learning and explores the opportunities of micro-credentialing for non-formal learning. While Ramon Martinez explains the functioning of blockchains as underlying technical instrument, Mike Coterell shares the experience of applying the system of learning badges to non-formal learning projects conducted in Erasmus+. On the example the tool AppRaiser Snežana Bačlija Knoch explores learning pathways to support the professional development and learning of educators based on the ETS competence model for youth workers.

The Stock of Experiences in Adult Learning and Education

What is already there in adult learning and on what stock of experiences can we build? Is digital transformation just another totally new, big challenge ahead of us? For sure, it largely affects our teaching/learning environments, it also affects the profession of the educators as well as opportunities and pathways learners can follow.

Cases Where Digitalisation is Already Playing a Role

Depending on what focus we put on the learnings there are different experiences where EDC/HRE learning is already involved and can vitally build on:

The practice of international cooperation:

In particular projects in international exchange in formal and non-formal learning have welcomed digital tools from their very first appearance. These were the first complementing preparatory video conference meetings, adding web-based boards, where people from different country groups could place their research, media or texts in preparation of the analogue gathering during an exchange program. In consequence, they have used email and messengers for connecting and communicating, and also experimenting with small digital tools for entertainment and evaluation in the seminar room.

History and remembrance work:

Worldwide, museums and archives have developed offers and opportunities encompassing individual deepening and learning. In many museums, whole collections can already be visited completely online, a potential widening of access to a vast audience, going far beyond traditional groups of visitors.

Historical and remembrance sites with app-based guides and learning tools, training tools and curricula based on non-formal learning offers for educators are tackling certain fields of EDC/HRE and also embed digital methodology and material.

Tremendous efforts to digitalise the experiences of historical eye-witnesses, of the Jewish victims of the Holocaust and the vast victim groups of the National Socialist regime and its vasalls in Europe were initiated already twenty years ago. An example are the digital collections of the Yad Vashem archive: https://www.yadvashem.org/collections.html Other projects document mainly the Nazi-occupation in Europe as for example done in the occupation memories database, documenting the Nazi-occupation of Greece http://www.occupation-memories.org/de/index.html.

Game-based learning approaches are represented by the game, http://attentat1942.com/, about survivors involved in Operation Anthropoid, the Heydrich Attentat 1942 in the Protectorate of Bohemia and Moravia.

Immersive approaches using digital and analogue media and instruments such as conducted by the research theatre project Blodveger/Blood Roads: https://blodveger.info/?page_id=538. This is a production about Nazi forced labour in Norway.

Surveillance, privacy and data protection:

Many concepts facilitating these topics make use of non-formal education settings. "The glass room", https://theglassroom.org, is a misinformation toolkit and educational exhibition developed by the tactical tech collective. "Fake it to make it" is a game, where learners might experiment with disinformation. Various arts based

concepts and instruments exist to explore the digital realms in our mixed digital-analogue world, as for example introduced in the context of https://transmediale.de.

Adult Learning:

The VHS Munich's program "Connected. Living in Digital Worlds", https://www.mvhs.de/programm/themen/leben-in-digitalen-welten, is providing learning about core questions related to digitalisation, such as: can machines be creative?; does artificial intelligence make our work superfluous?; does digitalisation make us freer? And is there a right to analogue life? It links knowledge with an attitude of active citizenship as it invites learners to become active!

Forms for providing and managing content:

TED Talks introduce a specific form for attracting attention on topics, but also the broad availability of digital media collections of TV channels – have both incrementally changed the way learning is happening. Partially inspiring and explanatory videos are replacing traditional text work or lectures. Similarly, AI-driven language tools such as translators or even text writing programmes offer unknown forms of global knowledge management.

As for the field of formal education, it seems YouTube has become "the big education machine". It is especially the dozens of curricula-oriented specialist channels and specialist videos providing sound support and transmitting for school-based content, in a sometimes extraordinary way. In posing the question of whether the STEM orientation within school is not an outdated focus, or vice versa if this does not again push for a change of focus in traditional learning settings, stepping away from explanation and providing room for experimentation, application and reasoning. Similarly, the digitalised reality has resulted for teachers in an unlimited number of templates, didactics, tailor-made materials ready for use with students, which in the non-formal field has its counterpart for example in the SALTO database on methods.

Although there are plenty of didacticised materials and concepts available, it seems that the institutions and the profession of (adult) educators being directly involved in civic education are not on the forefront of actors turning to digitalisation of learning, but seem to be reluctant.

How should digital learning teaching and training look? Does it just make use of digital instruments and seeks to replace or substitute a well-reasoned and argued for analogue practice? Is a practice of digitalisation something different from digital learning and how should it look? What efforts need to be made? Where are positive gains, or where are critical points?

Looking into the underlying ideas of education for democratic citizenship, it is worth remembering their model following a simple basis:

Human rights education and education for democratic citizenship schemes

Learning
through
Human Rights

Learning
for
Human Rights

Learning
about
Human Rights

Learning
democracy as a
form of governance

Learning
democracy as a
form of society

Learning
democracy as a
form of living
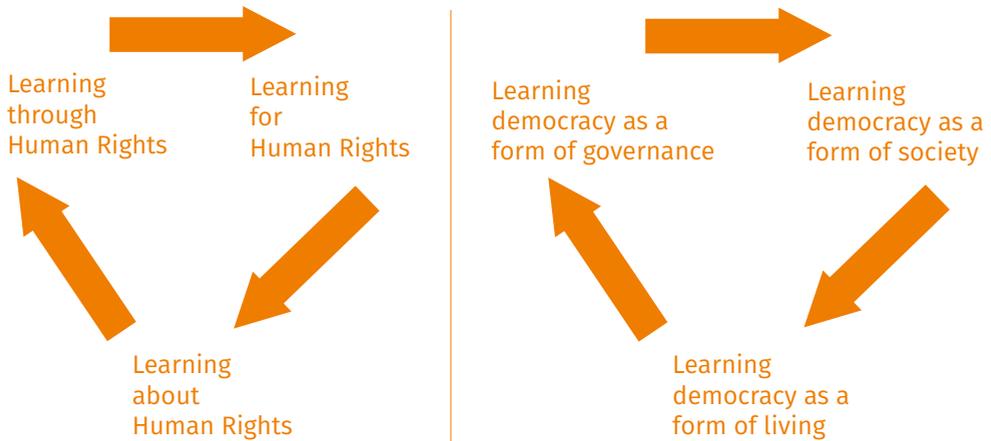
Both models, as simple as they look, enable deep learning and reflection processes and offer various entry points to the topics of learning, the learning processes themselves, dimensions to be included, the role of educators/facilitators of EDC/HRE processes and the design of learning activities. Also, they show limits and boundaries of education.

Connected with the idea of digitalisation/digital transformation, a model if digitalised education could look like the following proposal and be integrated with the schemes of EDC/HRE:

Learning for digitalisation
(co-determining the digital
transformation in society)

Learning about digitalisation
(social, cultural,
economic impact
of digitalisation in society)

Learning through digitalisation
(digital learning)
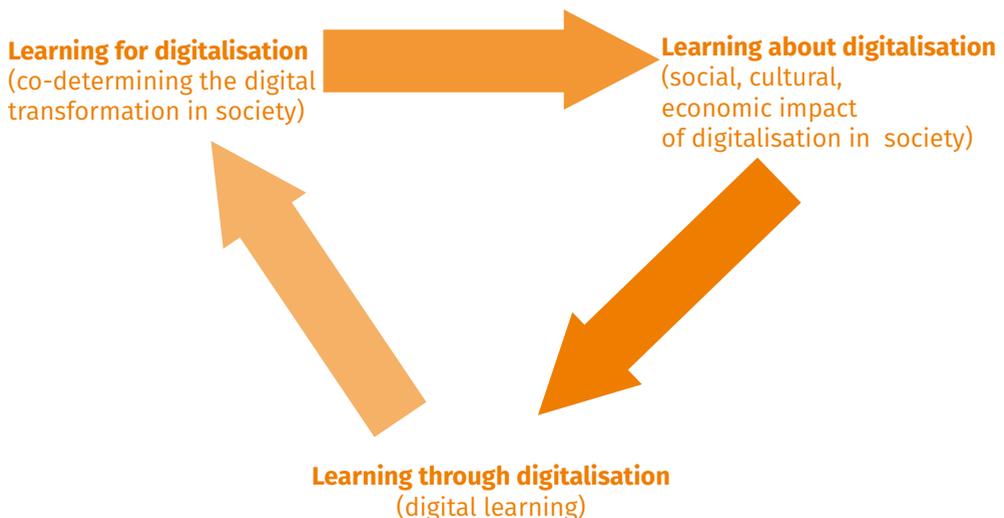
2. Impact of Digital Transformation (Adult) Education and Training

By Daniela Kolarova

The chapter focuses on the transformation of (adult) education and training in non-formal and formal sectors related to the EDC/HRE (competences, activities, experiences). It means impact on schools (teachers as educators and as adult learners) and NGOS working in the field of EDC/HRE (educators and adult learners). Which trends are emerging due to digitalisation? Which challenges is this transformation bringing? And what are opportunities?

The digital learner is a person engaged in learning accompanied by technology or by instructional practice that makes effective use of technology. It includes application of various practices including blended and virtual learning. Digital learners realise the possibilities and potentials of digital technologies in their environments. They recognise the value of technology and opportunities it presents in their working and private life.

Development of digital technology provides opportunities for learning to be enhanced through an engaging process, which appeals to learners. There is a shared agreement that if approached correctly, digital learning can enhance learning in three main dimensions: deliver more, cheaper, and better learning (Beblave et al, 2019, p. 8). Digital learning offers the opportunity to learn "old" subjects with new methods so people can learn, through a structured and systematic method, but also new subjects and new skills (e.g., coding), which are increasingly important for working and taking part in society.

Opportunities & Challenges behind Digital Education

Challenges

The digital divide. Most commonly defined as the gap between those students/learners who have, do not have, or know how to use the Internet and information technologies.

Inclusion and infrastructure, having the right equipment and sufficient data.

Learners' competences. Those new to an online learning environment typically lack

the level of metacognition awareness, time management and self-directed learning needed to be successful.

Teachers' competences. Being a good teacher doesn't translate into being a good online educator. Teaching online is different than in a classroom. Not enough teachers to provide big groups of learners with sufficient instruction, attention and feedback online has the potential to seriously reduce the kind of attention learners require. Adjusting this element will constrain teacher and learner interaction and inevitably lead to learners who require more attention-getting left behind by circumstances beyond their control.

Motivation and learner interest. Lack of direct teacher contact, face to face interaction, movement and touch together with unwelcoming online learning atmospheres.

Technology. Edtech does not deliver on its promises. Apps and programmes update and change faster than research can analyse the concrete impact of the business model in education.

Opportunities

Having less support, but in more forms and with more flexibility is developing complementary learning methodologies, mainly focused on collaboration and self-directed learning. This requirement of a stronger sense of initiative in the learner is so distant to the classic concept of schooling in most countries that the new developments are hard to predict.

These learning approaches bring the opportunity for learners to develop and implement personalized learning paths. The concept of curriculum is more flexible, and the outcomes of the process more meaningful when learners participate in the process from its design onward.

Through online platforms, learners no longer need to learn exclusively through lectures. Instead, teachers have the potential to hold synchronised meetings with smaller groups of learners to provide adequate feedback; to create podcasts that require less data download; they can record videos of their lectures, so learners can access content more than once; or they can form discussion groups to promote peer-to-peer learning and move beyond the hierarchy of the teacher-learner relationship.

The Digital Native – A Myth?

There are still widespread perceptions that digital learners are the so-called "Net generation", technology-savvy students who have grown up immersed in technology and whose way of learning is shaped by this.

Millennials, Net Generation, Digital Natives and Digital Learners are concepts put in circulation mainly to underline the facts that the rapid dissemination of digital technology in the last decades of the 20th century created a generation that have spent their entire lives surrounded by and using computers, videogames, digital music players, cameras, cell phones, and all the other tools of the digital age. Even at the beginning of the century the average college graduate spent less than 5,000 hours of their lives reading, but over 10,000 hours playing video games. Computer games, emails, the Internet, cell phones and instant messaging became integral parts of their lives (Prensky, 2001). And while students changed radically, the educational system was slow to adapt to them, their capacities and needs. That is why some observers of the early years of digital technology point to the disconnection between what students wanted and what they received, which resulted in rising student frustration.

Marc Prensky defines the students born in the digital era as "digital natives". They are "native speakers" of the digital language of computers, video games and the Internet. He suggests the concept as an alternative to the concepts of N-generation/N for Net/ or D-generation/D for digital. Those who were not born into the digital world yet are fascinated by it, he labels as "Digital Immigrants" (Prensky, 2001). Harnessing that fascination to advance training delivery should be the focus for those less familiar with technology's impact on training.

There are critical voices in the current discussions about educational policy and practice that challenge the mind-set which considers students who were born in an age of digital media to be fundamentally different from previous generations of students. Critics argue that there is not convincing data showing that students that have been labelled digital natives and have been ascribed the ability to cognitively process multiple sources of information simultaneously (i.e., they can multitask) are radically different from that of previous generations.

Paul A. Kirschner and Pedro De Bruyckere (2017) present scientific evidence showing that there is no such thing as a digital native who is information-skilled simply because they have never known a world that was not digital. They also present evidence that one of the alleged abilities of students in this generation, the ability to multitask, does not exist and that designing education that assumes the presence of this ability hinders rather than helps learning. These and other studies provide evidence that the "Digital Natives" perspective seems to be inappropriate and insufficient at describing the population of current learners. Besides, some features of the widespread expression "Digital Natives" and many associated assumptions have been demystified (Rapetti & Cantoni, 2012, p. 9).

Some researchers provide a literature review of the concept of "Digital Natives" and related terms (Gallardo-Echenique et al., 2012). They explore how viable the idea of a homogeneous generation of prolific and skilled users of digital technology born between 1980 and 1994 is. The authors conclude that on the basis of the findings, there appears to be no commonly-accepted definition of a "digital native". Moreover, there are a number of

variables other than age that may help us understand the nature of students' use of digital technologies. The so-called "digital native" literature demonstrates that despite students' high digital confidence and digital skills, their digital competence may be much lower than those of their digital teachers. Most students are comfortable with computers and smartphones, they know how to interact with technology and participate in the digital culture but being digital users is different from being technology creators.

Toward Digital Literacy

To prepare students for future jobs, some educators advocate focusing mainly on practical digital skills, including coding or at least knowledge about the software they use in order to be able to take full advantage of the technology available. Students have to learn how cloud data storage works, what technologies should be in place for basic cyber security, how to use current technology, such as choosing the right tool for a particular task or how to incorporate digital media into a specific presentation in order to become a more knowledgeable future workforce, even if they don't have coding skills. Thus the concept of digital skills is expanded to "digital literacy", which reflects the importance of asking questions and examining how technologies impact culture, communication, creativity, and social interactions. Digital literacy teaches students to think critically about how technology impacts their world.

This way, the term "digital literacy" encompasses 21st-century skills related to the effective and appropriate use of technology. It is the "ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills" (ALA). Digital literacy builds upon and expands the skills that form the foundation of traditional forms of literacy.

Functional skills

E-safety

Creativity

Effective communication

Digital Literacy

Critical thinking and evaluation

The ability to find and select information

Cultural and social understanding

Collaboration
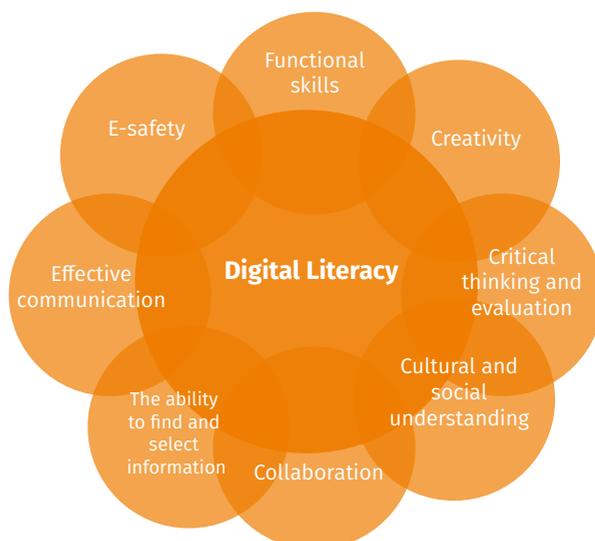
Components of Digital Literacy:
The eight components build on the concept of literacy.
(Hague & Payton, 2010, p. 19).

Digital literacy is supported by learning of computational thinking or coding. There is a movement towards providing more computer science training in schools, emphasising the importance of educating students to be digital creators, not just users. Students trained in computer programming learn logical reasoning, how to look for patterns that solve problems, and how to break problems down into small parts that are easier to tackle. They know how to make something from scratch, they are curious to figure out how things work, and they are trained to persist and to tackle a problem in order to fix a program. Computer coding helps students to understand how computers function and what the possibilities to take control of their technology are.

A holistic approach in education that incorporates both computer literacy and computer programming will provide students with competences they need to succeed in the digital economy.

Given the confusion and limitations surrounding the concepts of "digital native", "digital immigrant" and "digital literacy", their is an agreement among authors propose to centre on the concept "digital learners", where the focus is on a person, capable of learning and engaged in learning processes accompanied by technology.

A good example of current "non-digital native" learners' abilities are the studies showing older adults or elderly people learning and acquiring digital literacy skills, especially when they are strongly motivated or they know the functional benefits related to ICT (Martínez-Alcalá et.al, 2018). Learning digital skills helps them to enhance their everyday life, to remain independent in their own home. It generally has a positive impact on their lives, from sending emails and online banking, to carrying out tasks around the home, connecting with family or playing games with friends online. Digital activities in everyday culture such as food shopping, keeping track of appointments, controlling home temperature, checking the weather and getting prescriptions motivate adult learners to acquire skills that make their life simpler, easier and more interesting. Learning new digital skills has a positive effect on their mental and physical health and general well-being and enables them to live independently for longer. Being aware of how digital learning improves the quality of life of the elderly, many organisations such as Digital Boomers, UK (Digital Boomers), provide services to help elderly people learn technology, and results show that their ability to learn is very high.

There is also a growing understanding that digitalisation in the everyday life of all generations has become a particularly pervasive influence on culture due to the internet as a mass form of communication, and the widespread use of personal computers and smartphones. Digital technology is so widespread around the world that the study of digital culture potentially encompasses all aspects of everyday life. As a set of values, beliefs, artefacts, rituals, etc., digital culture starts to distinguish itself from other forms of culture. For example, values such as efficiency, connectivity and more networked, collaborative and participatory forms of "doing things" become distinct characteristics of digital culture in comparison with its predecessors, like the print or broadcast cultures. From an educator's point of view, to design a learning methodology within this new

culture context means to create an open and dynamic process based on interactive communication and to create conditions where digital creative processes of different media could converge.

Traits of Digital Learners

Digital learners are technical and well-positioned to use internet and technology in learning. They are looking for possibilities to use digital technology and to realise its potential. They are also busy and impatient. Studies show the workload increase after the recession of 2007-2009, when managers and employees were under pressure to learn and adapt quickly to new realities by reading and absorbing a vast amount of information (Worrall & Cooper, 2014). Most learners of online courses are impatient and intolerant to complexity, they demand the information to be split up into manageably sized pieces and the content to be digestible: avoiding long texts and having images and videos that present the information in an easy to absorb manner. This fast increase in the use of digital technology has led to negative health effects, including addiction. In 2010, the term "digital detox" was introduced as a form of coping with overload through periods of time away from technology. The expectations towards digital platforms are related to smooth operation and quickly loading, offering help when necessary and accessibility from everywhere and at anytime using various forms of equipment like laptops, desktops, tablets or smartphones.

Most digital learners are impartial to which kind of equipment is used. What they want is the flexibility to learn when it is convenient for them. Studies by the Pew Research Center suggest that more than half of adults in the USA and Europe use two or more devices every day and more than 20% use three or more (Pew Research Centre, 2019).

Digital learners are social – many of them use various social platforms to gather information, exchange opinions, present their work or follow important sources. This type of learner is always connected and seeking information from many sources. They are textual as well as highly visual, processing pictures, sounds and video along with text. Digital learners are experiential, social learners. They like to interact with other learners to explore and discuss information, have higher trust in other users' experiences, and draw their own conclusions.

Other key features of digital learners are the skills and confidence to become a competent and autonomous learner in a digital age. Learner autonomy is presented as the ability to take charge of one's learning, to hold the responsibility for all the decisions concerning all aspects of this learning, i.e.: determining the objectives, defining the contents and progressions; selecting methods and techniques to be used, monitoring the procedure of acquisition, speaking properly (rhythm, time, place, etc.), and evaluating what has been acquired (Holec, 1981). Another association is that of self-determination or authentic engagement on the part of the learners to proceed

with learning and in agreement with the learning contexts (Willems & Lewalter, 2012). The digital learners often are independent learners who are able to teach themselves with guidance (e.g., YouTube videos) and expect learning technology to be intuitive.

This means that the digital learners nowadays are not merely users or consumers of technology. Their technology experience becomes more and more complex and their participation in the learning process becomes more autonomous and focused on areas that they find significant and responsive to their needs. Digital learners prefer to construct their own learning; they may enter into learning at any point in the process. It is clear that the current concept of "digital learner" rejects generational boundaries and generally accepts all learners - indiscriminately and without prejudices. It adopts a socio-cultural, anthropological, communicational and pedagogical approach through learners' perspectives.

Digital learning is multi-generational, encompassing all ages and taking into account situational realities regarding access and participation levels. According to Dan Pontefract and his Digital Quadrants Model, to create equal opportunities for learning, it is important to create equality in the opportunity to access digital environments and participate in the digital world. The four quadrant classifications are based on the learner's willingness to participate in the digital world and the degree to which they choose or are able to access and use the digital environment.

Digital Learning Quadrants

© Dan Pontefract
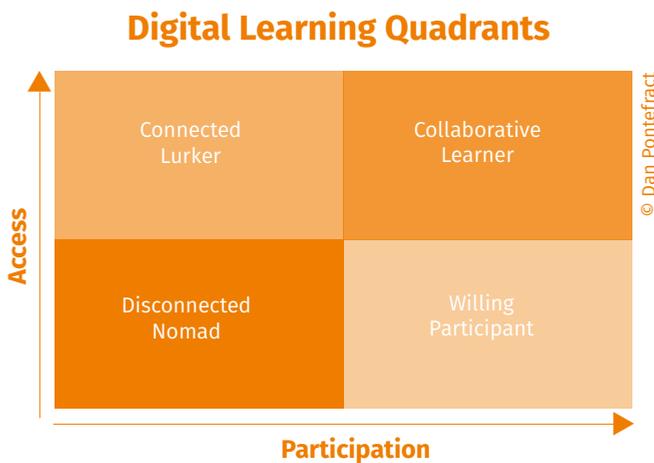
While this model underlines that learning occurs with the aid of technology regardless of age, it also pays attention to the reality of unequal access to digital devices and internet, which is the situation of millions of people in the world – "disconnected nomads" who need the biggest level of assistance from a global perspective. The other group of "willing participants" are engaged in the learning process, but for them technology access becomes a burden due to lack of devices to get online or lack of skills and confidence to connect to the internet and use technology. On the other side, the "connected lurker" is a learner who has a number of technologies and levels of

access at their disposal, but they consciously decide to be an infrequent participant and consume, absorb and interpret available information rather than actively participate with others or contribute back. Finally, the "collaborative learners" have access to devices and the internet most of the time, if not always, so they have the opportunity to be connected and to participate in the learning process. They seek out content and knowledge and are willing to contribute back to their networks.

Digital Competences

Development of digital competences is a key to enhance the abilities of the digital learner. The digital competence is one of the eight key competences for lifelong learning recommended by the European institutions (EU 2018/C 189/01). It refers to the confident and critical usage of the full range of digital technologies for information, communication and basic problem-solving in all aspects of life. The digital competence is perceived as a transversal competence that helps people master other key competences, such as communication, language skills or basic abilities in maths and science.

The European Commission Digital Competence Framework for Citizens (DigiComp 2.0, 2016) has identified the key components of digital competence in five areas, which together include 21 competences:

Information and data literacy;
Communication and collaboration;
Digital content creation;
Safety;
Problem solving.

There are eight proficiency levels, and examples are described in the EU publication that serves as guidance for European schools and their ICT programmes. (Carretero Gomez, et al., 2017).

The European Framework for the Digital Competence of Educators (Redeckers, 2017) is directed towards educators at all levels of education, from early childhood to higher and adult education, including general and vocational training, special needs education, and non-formal learning contexts.

Educators' Professional Competences
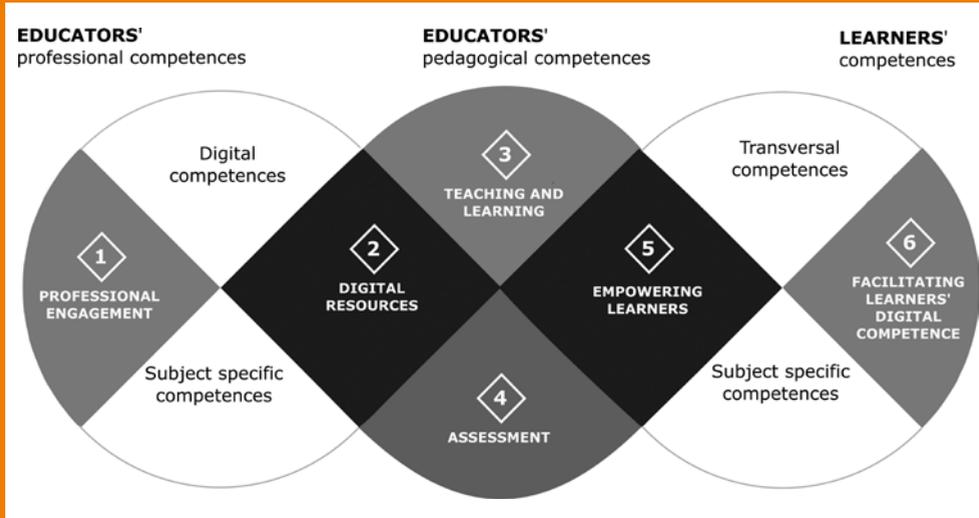
It presents a scientifically sound background framework to guide policy and to implement regional and national tools and training programmes. Both instruments provide a general reference frame for developers of digital competence models in European countries.

These frameworks are already in use in most European countries. For example, students in the final grades in their secondary education are tested for their digital competence. The results of European studies regarding digital competence highlight conclusions of particular interest to policy-makers (Eurydice, 2019). Despite the challenges related to the acquisition and assessment of digital competences, it is clear that the frames are facilitating the development and application of digital skills among students and educators.

Digital Inequality

The assessments of digital skills and competences conducted during the last couple of years in Europe expose the existing digital inequality or the so called "digital divide" – the gap between individuals, households, and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICT) and to their use of the internet. Given its dynamic nature, the digital divide will not disappear as long as other inequalities exist in society but policy makers can address the existing challenges to bridge the gap as much as possible.

Digital learning has been rapidly accelerated during the 2020 coronavirus pandemic, which affected the educational system and economy worldwide. A total closure of

schools at all levels put billion of learners and educators in a position to resort to digital education to the extent possible. In response to school closures, many international institutions recommended the use of digital education platforms, distant learning and open applications suitable for schools and teachers to reach learners remotely and limit the disruption of education. But voices from many countries describe how the pandemic exposes digital inequality. Lack of equipment or access to reliable internet are reasons for many learners to be cut off from their education. While some governments take measures to ensure that most students continue to learn online thanks to a massive distribution of free computers and internet connections, others are still excluded for different reasons (e.g. lost contacts with families who may have moved because of getting unemployed or even becoming homeless). To ensure digital equity is one of the first points of the school's strategies for online learning during a coronavirus outbreak and involves school authorities to buy and distribute devices and internet access, and to ensure support for students during their distance learning process.

   Still for a big part of learners from all countries, the development of digital technology provided opportunities for learning in times of a worldwide pandemic to be supported by the existing digital means and infrastructure. The process was imposed by necessity and offered an opportunity for students to learn through a structured and systematic method and maintain the connection with teachers and other learners.

    Similar, in Europe´s diverse structured systems of Adult Educaton the Pandemic revealed difficulties of adult education providers

   to remain in contact with their target groups
   to provide GDPR conform adequate learning resources and instruments

The difficulties reproduce according to known patterns of inclusion, and challenge especially adults from vulnerable groups (housing, economic, social…), who face difficulties in accessing and participating in learning.

   Thus the right to education as a fundamental and basic human right is heavily challenged.

Conclusions for Education

It is important to notice that digital learning is **meant to enhance learning**, not simply continue it via digital means. Technology represents means for more engaging learning opportunities for all.

From the perspective of education for democratic citizenship and human rights education (EDC/HRE), developing digital competency means supporting citizens to participate safely, effectively, critically and responsibly in a digital world. Improving the effectiveness of such education in formal and in-formal settings means organizing it in a manner that is **accessible, sustainable, participatory and of high quality.**

EDC/HRE educators need to understand and empower today's digital learners and to make effective use of technology, including applying practices related to blended and virtual learning. Being part of and understanding the everyday digital culture puts educators in a position to design learning processes and guide students to acquire a range of competences, attributes and behaviours that utilise opportunities of the digital world while building resilience to potential harms.

The EDC/HRE educator needs to guide learners to make sense of the ocean of information, to be critical and selective and to know how to engage effectively and responsibly, exercising their rights and participating in the affairs of the community.

The concept of "digital citizenship" views education as a continuous process of lifelong learning taking into account the context in which learning takes place. Students are trained to engage positively, critically and competently in the digital environment through responsible use of technology. They are also given an opportunity to be autonomous in some parts of their learning process by selecting devices of their choice or by studying and exploring issues using their choice of methods and techniques.

Teaching EDC/HRE to digital learners in a digital environment becomes an open, creative and interactive process that relies on use of different media and on the engagement of collaborative learners.

Daniela Kolarova, has an MS in Psychology, PhD in Sociology and teaching experience in civic education and conflict transformation. Her recent interests are in communicating, thinking and learning in a digital world.

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3.

Education in the Digital Divide

By Elisa Rapetti

Digital transformation affects socio-economic processes and has a great impact on how societies are changing in terms of organisations, communication and building future visionaries. It has a relevant influence in all the dimensions of individual life, from work to leisure time. Public authorities, companies and citizens have to change their way of organisation and management in order to adapt themselves to the new challenges and opportunities. Technology and its implications bring change that have a major intersect with the inequality characterising our societies. For this reason in 2001, an OECD report defined the concept of the "digital divide" as "the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICT) and to their use of the internet for a wide variety of activities" (OECD, 2001, p.5).

The report points out also the main factors that determine the digital divide: a) accessibility of the infrastructure (communication infrastructures, computer availability and internet access); b) the standard of living (income) and the level of education; c) other factors such as age, gender, racial and linguistic backgrounds and location of the households. The "digital divide is seen as a reflection on the inequalities in society, and it will continue to exist as long as these differences exist" (Vasilescu et al., 2020, p. 2). It is an evolving concept that is crucial for understanding the mechanisms of inclusion and exclusion that characterise our societies today and in the future. These mechanisms trace the lines

Digital Divide:
Gap between individuals, groups, or regions with regard to their real opportunities to access information and communication technologies (ICT) and to use it.

of participation in the labour market and democratic life, generating new vulnerable groups and new needs for understanding and learning the complexity of reality/ everyday life.

In particular, as regards the impact of digitalisation on the organisation of work and the labour market, it is necessary to underline how technological transformations - more or less fast and widespread - have significant consequences on employment structures, requirements and working conditions in terms of psychological and physical effects due to new technologies. Finally, the institutional and regulatory context is influenced by technology and this has consequences for the contractual and social terms of work, including stability, development and remuneration opportunities. In this context, the main changes due to digitalisation concern the automation of work – the replacement of human by machine, the digitalisation of processes – the growth of possibilities of processing, storing and communicating the digital transformation - and coordination by platforms – use of digital networks to coordinate economic transactions algorithmically (Vasilescu et al., 2020, p. 4).

The emergence of new training needs, therefore, highlights specifically the skills needed in the working dimension. This is crucial in terms of economic inclusion and participation in the public sphere and social cohesion. It is worth it to mention specifically the need of improving the lifelong learning processes for three reasons. First, in order to guarantee the adaption of the skills supply to changes of the economy (addressing the digital skills gap). Second, to take in to account demographic changes and specific socio-economic characteristics and perceptions on innovation and digitalisation of the elderly population. Third, changes in occupational structure because many jobs will change or disappear, and many others will be substituted or created. „Education is playing an increasing role as many people with a low level of education, and poor qualification will have to be relocated to tasks that are not susceptible to be performed by robots or artificial intelligence. These changes should be carefully managed to reduce the risk of increasing inequality and polarisation within society" (Vasilescu et al., 2020, p. 34).

Quality education and life-long learning processes are the key elements in order to assure the possibilities of present and future generations to have access to the essential skills for participating in the public sphere in an increasingly digitally driven world. The work dimension is crucial considering the digital divide, but it does not exhaust the learning needs, which emerged from several dimensions of the individual life and societies organisation. A high level of digital skills and better understanding of digital transformation can reduce peoples' fears of the unknown and impact of new technologies and increase awareness of how to safely use them.

"Change cannot happen without a pervasive, careful, wise investment on education."

Interview with Dino, Maurizio and Mara Pieri
from Informatici Senza Frontiere (Informatics Without Borders)

Why is it so relevant to fight against the digital divide to ensure democratic processes in modern societies?

Today, all our lives are influenced by some connection with technology, whether through the use of smartphones, computers, and social networks or through the exchange of digital data in hospitals, schools, and workplaces. It is, thus, extremely important not only to guarantee access to technological equipment but also to provide adequate education on how to use it, the risks it may involve, and the consequences of our use on the others and on the planet. Democracy evolves when citizens are aware, educated, and well-informed about the instruments they use in their society every day. Without such education, the risk of misuse of technologies, manipulation of information, and control by political powers increases dramatically.

Which are the target groups you work with most in order to fight the digital divide? And which competences and skills do you believe are the most important in order to guarantee the opportunity of citizens generally – and specifically for your target groups - to actively participate in a democratic society?

For most years of our activity (we started in 2005), we have been focused in providing instruments to overcome the digital divide in three main ways: through education, through information technology, and through software development. In the first case, education, we work mainly with groups that face higher exclusion and difficulties in accessing basic training on the use of digital technology, such as prisoners, older people, migrants and refugees, disabled children and unemployed women. The aims are to contribute to the empowerment of these groups through better access to information technology and use of digital instruments.

With other projects, we privilege interventions that imply both the installation of systems and training for the people that will use them. We intervene, for example, in contexts where the basic internet connection is absent and where a room equipped with computers and printers can make a great difference, as in the case of project development in hospitals and schools in several African countries (Mozambique, Kenya, Uganda, the Congo, amongst others) or in refugee camps. It is always crucial for us to provide training to local organizers and community leaders, in order to create the conditions for them to manage the infrastructures independently: we don't believe in a top-down approach and prefer to invest in creating opportunities of learning for the people that will be involved in the communities once our operation is over.

Finally, when we operate through software development, we identify areas of need

and make sure we create products that can be further accessed and improved by communities of developers. Our first open access software, Open Hospital, was born to help the management of a hospital in Angal (Uganda) and since then has involved dozens of developers and installations in Africa and Asia. In 2016 it was awarded by the World Summit ONU as one of the most innovative software solutions developed for health and communities.

In the past few years, we have become more focused on providing education and training in local Italian communities. For example, we organised several courses to teach old people how to use computers and smartphones. We also provided classes to refugees and migrants, offering education for instruments that will hopefully offer them more opportunities for inclusion, such as how to create a CV in Word and search for jobs on the Net. Finally, we collaborated with other organisations towards the fight against cyber bullying and hate speech.

In our mission, we seek to include volunteers of all ages. Many are retired people who find space to give a new value to their prior working experiences in IT (Digital Ambassadors): their expertise and their knowledge in the field is fundamental.

Could you explain deeper how you fight against the digital divide?
As previously explained, we operate on different levels to provide a wide range of interventions in international and local projects. Whilst we try to make our initiatives replicable, we also make an effort to adapt the projects to the specific needs that emerge in the local contexts.

In the area of knowledge, we operate through different courses. Our courses of digital technology are oriented to digital storytelling, use of the smartphone, use of e-mails and internet, etc., provided by our volunteers. They are organised in collaboration with local organisations, and free of charge, addressed to older people (both in care institutions and not), migrants and refugees, unemployed women, or incarcerated people. Furthermore, our courses, in collaboration with schools, provide education about digital instruments, such as coding through "Scratch", and to encourage intergenerational exchange of knowledge between students and old people.

With public encounters with teachers and parents, we aim at the creation of a culture of respect and awareness about the risks of digital instruments, also through projects devoted to the contrast to hate speech online and cyberbullying.
In the area of disability, we take action through:

development of technologies/software to improve quality of life of specific users;
development of digital strategies for the accessibility to culture and education for children with disabilities;
implementation of technology and artificial intelligence systems for home automation.

Some examples of project in the area of disabilities include Sensoltre, a tactile paintings

project; "Progetto SL@" for online psychological support; the use of digital technology applied to the scholastic education of the blind in Beira, Mozambique, TECH4SEE; and IsA, I speak again.

In the area of development, as previously described with the case of Open Hospital, we mobilise our volunteers in the development of new solutions for accessibility, research of available options (preferably, free and open access) for specific needs, and with the development of new releases of the software we originally developed.

Digitally facilitated learning addressed to any target audiences, but above all adults and professionals seems to be more and more widespread in recent times, above all during and after the COVID-19 lockdown policies.

According to the ISF perspective, which are the opportunities, challenges and limitations of the digitalisation of adult learning?

We are going through a massive revolution that holds many opportunities but also hides few risks. The opportunities are to force our country to produce digital innovation to which it has often resisted, to invest in it and to make it possible much faster than it would be in „normal times". Also, this revolution will contribute to tearing down some of the obstacles to digital access, such as geographical differences, gender differences, disabilities and so on. It will push all sectors to invent and invest in new forms of producing, communicating and distributing digitally and this will have a positive improvement in the type of education and learning young generations will face in preparation for the future.

However, this change cannot happen without a pervasive, careful, wise investment in education: the technological instruments need to be used with attention and awareness. Adults, seniors, kids and students - all sectors of the population at all ages - need to learn how to use these instruments to express their potential and to limit the potential risks. In years of activities against the digital divide, we have observed how education is often more indispensable than the mere presence of a technological instrument.

Which are the negative and positive future interactions between the digital sphere and education/learning and training? Which are the most meaningful aspects/elements of digital transformations that trainers in the adult learning environment should consider in order to be effective?

We are more and more confronted with the challenges and the wide possibilities offered by artificial intelligence and this is a crucial point to be developed and explored in the future: artificial intelligence applied to education and learning represent an important opportunity to expand our ways of creating knowledge and to create new forms of interaction, in particular if we think about disadvantaged groups of people and disabled people. We need to be aware that artificial intelligence can cause harm by manipulating our reality if we do not train them properly: the use of these technologies needs to be always done with ethics and responsibility in mind.

Dino Maurizio is President and Mara Pieri Comunication Manager of the Italian organisation from Informatici Senza Frontiere (Informaticians without Borders). Further reads. https://www.informaticisenzafrontiere.org/en/

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4. Competences for the Digital Transformation

By Ramón Martínez

We are facing the greatest socio-economic challenge in history, on the threshold of something that we will call the Fifth Industrial Revolution and that will bring us closer to a world in which everything we do now, in a certain way, must be rethought. Labour, the social and the political. When we address competences for the digital transformation, content is not just media literacy or programming skills, as the target is not just youth but global citizens. This is an important base to understand the scope of this transformation, competence-based learning is an approach to empower all digital learners to use technology well, safely and awarely, improving their life in the process.

From one perspective, the rise of social movements for inclusion, diversity, human rights and the environment are making this the most human and solidary era in history. From the other side, although the automation of the world does not seem like great news for many people, this will most likely end up becoming also the most technological era ever seen, something that is not incompatible.

A survey by IBM (IBM 2019) that builds on the PWC report (PWC 2018) on the theoretical robbery of jobs in the hands of robots shows how more than 120 million workers worldwide will need specific training in the next three years due to the impact, especially, of artificial intelligence on their jobs. The figures linked to purely industrial robotisation do not appear here. This should undoubtedly be one of the major concerns of all public administrations. If there is a shortage of talent in the areas where it is going to be needed to focus human work, why are we not setting the path so that we do not have a frontal collision with a reality which we can already see and would have catastrophic consequences?

The Gap Gets Wider

Today, on average, workers need 36 days of training to eliminate a gap in their competences. Just five years ago, only three days were required. This is because the

competences that are beginning to be required today, and that will increase in the near future, are more behavioural in nature. We talk about teamwork, communication and other highly technical ones, such as the capabilities in the science of data analysis. Amy Wright, Head of Talent at IBM said in an interview that „Reskilling for technical skills is typically driven by structured education with a defined objective, a clear start and end,[…] building behavioural skills takes more time and is more complex" (Al-Jazeera, 2019).

This approach already matches the ongoing trend in education since the 20th century to develop skills and knowledge into a more holistic concept of competences. Approaches have already been established in education dialogue in most EU countries as well as European Union and Council of Europe, but are still not completely installed in the business field. This shift from skills to competences brings on board behavioral skills as attitudes and goes as far as including values as a central part of it (OECD 2019). We see this transformation also fitting the shift in the competences demanded towards these "new" dimensions.

From 2018 to 2020, the European Commission launched its Digital Education Action Plan (European Comission, 2020), for which they are soon releasing a renewed action plan. This action plan shapes a new skills agenda for adult education and presents measures to help Member States and education and training institutions to reap the opportunities and meet the challenges presented by the digital age, divided in making better use of technology, developing digital competences and improving data analysis. In the same form, the European Commission launched in 2020 a framework for personal, social and learning to learn competences, LifeComp (Sala et al., 2020). This framework also connects with transversal competences required for digital citizenship. The European institutions are making a clear statement about which they consider the fundamental competences to adapt to a changing world and the shift from knowledge to transversal and values. Taking into account the changes that digital transformation is causing in organisations and institutions of all kinds, these "behavioural skills", such as the ability to work well in teams, communication, creativity, and empathy, are best developed through experience rather than through structured learning programmes such as short-term seminars and written modules. In other words, the focus goes to the attitude and value components of the competence.

It seems curious that the employment and education fields remark how "we have to train ourselves in new skills". Those competences that are required are tremendously human, each time more "transversal", even considered basic to the person instead of specific to the role, and far from new. It seems more about bringing these competences out than learning or creating them. Hence, the process seems closer to becoming more "technologically" human than gaining "new" competences.

How Clear is this Shortage of Competences and its Requirements?

European workers have a clear understanding of their needs to continue their lifelong learning processes. They also show interest in improving and acquiring new competences. This interest doesn't translate into practice in the same way across countries and fields, in many cases workers do not have the time, resources or support from employers to engage in training. Still, an average of one out of twelve EU residents are using online courses in a regular basis, which shows another layer of how digital education is supporting continuous development of competences becoming more accessible.

Country	Value
Finland	21
Sweden	18
Spain	15
Estonia	14
Ireland	13
Netherlands	13
Denmark	12
Malta	12
Luxemburg	10
Belgium	9
European Union	8
Germany	8
France	8
Austria	8
Italy	7
Lithuania	7
Chech Republic	6
Greece	6
Cyprus	6
Hungary	6
Portugal	6
Croatia	5
Poland	5
Slovenia	5
Slovak Republic	5
Latvia	4
Romania	3
Bulgaria	2
United Kingdom	19
Iceland	20
Norway	16
Switzerland	12

Share of People Doing an Online Course During the last 3 Months

% of people aged 16-74

Source: Eurostat (Data code: isoc_ci_ac_i)

When advising a company on its transformation process or delivering training for new entrepreneurs, many times questions generalise the process of acquiring these competences. The focus is on specific training in technical-type competences and experiences, and the aim is to follow the same process for these new needs. Technical competences are essential, obviously, but they aren't the core of this transition, nor is the traditional form of competence acquisition with a focus on knowledge and skill the recommended approach to follow.

Skills of Today vs. Skills of Tomorrow:

Technological, Social and Emotional Skills Will Become Even More Important

Based on McKinsey Global Institute workforce skills executive survey, March 2018

(1) Difference between % of survey respondents that expect to need a skill more and % of survey respondents that expect to need it less

NOTE: Based on results of March 2018 survey of 3,031 business leaders in Canada, France, Germany, Italy, Spain, the United Kingdom, and the United States. Chart based on % of survey respondents. Skills descriptions were shortened. Chart does not include fine motor skills, inspecting and monitoring, and quantitative and statistical skills. Bubble sizes are based on number of hours worked.

A technological revolution involves technology, but it must also be understood that, in this phase of technological transformation, a new role for people must be addressed. Every time a robot, an expert artificial intelligence system or an automatism replaces a human worker in a certain process, a new scenario of relations between technology and humanity is born. Hence, employers who are clear about that vision ask with increasing emphasis from their new workers for these so-called soft or basic skills (McKinsey 2018). They speak of communication, ethics and creative competences (World Economic Forum 2018), processes that transform also the concept of the worker herself. The traditional expert – generalist linear spectrum grows a third dimension.

Skill Forecast

Today, 2018	Trending, 2022	Declining, 2022
Analytical thinking and innovation; Complex problem-solving; Critical thinking and analysis; Active learning and learning strategies ; Creativity, originality and initiative; Attention to detail, trustworthiness; Emotional intelligence; Reasoning, problem-solving and ideation; Leadership and social influence; Coordination and time management;	Analytical thinking and innovation; Active learning and learning strategies; Creativity, originality and initiative; Technology design and programming; Critical thinking and analysis; Complex problem-solving; Leadership and social influence; Emotional intelligence; Reasoning, problem-solving and ideation; Systems analysis and evaluation;	Manual dexterity, endurance precision; Memory, verbal, auditory & spatial abilities; Management of financial, material resources; Technology installation & maintenance; Reading, writing, math & active listening; Management of personnel quality control and safety awareness; Coordination and time management; Visual, auditory and speech abilities; Technology use, monitoring & control;

Source: Future of Jobs Survey 2018, World Economic Forum.

With technology and the way of doing things constantly shifting, new tools, new languages and new forms of interaction with technology, the worker requires a lifelong and self-directed learning attitude supported by competences as curiosity and a level of meta-cognition that gives her the space to think about her thinking and learn about her learning.

As we write this text, technology is evolving in many directions. Artificial intelligence research laboratory, Open AI, has released the third version of their programming language model, GPT-3 (Open AI, 2020), This version has been trained over a hundred times more than its predecessor, over 175 billion parameters. It has been released in a closed beta, because "new AI capabilities, including fake text generator may be too dangerous to release". In less than 18 months since the release of the previous version, experts in this technology need to relearn and understand how to communicate and work with it.

Solving the matter of effective upskilling is in the hands of those who set the strategic lines in economic, labour, social and political matters. To establish mechanisms so that we all understand it and are effective in the long term. Spain, much of Europe, all of Latin America and most of the world, are not foreseeing the impact that digitalisation, AI and effective education are going to have on the employment figures and quality.

It is feasible to think that advances in automation, technology and artificial intelligence not only displace jobs but also create new ones. Hence, the challenge will be to train workers to fill new jobs. Some are taking it into account and others continue with the same methods, far from the problem that is approaching. If educational, vocational, university, academic and private sector plans are not implemented, if investment in this type of training is not rewarded, if tax reduction packages are not established so that companies can address the challenge, if comprehensive plans, public frames and provisions are not generated from the institutions, unemployment will become endemic, irreversible and with it efficiency, real productivity, and the economic level will decline.

Something that seems complex is not so complex. It is about putting on the table the requirements of the imminent society's economy, designing programmes to comply with a new labour model, stimulating its execution with active policies of all kinds and rewarding those who implement them. The „social" European model with its education and innovation processes has the potential to balance these costs and earnings that companies and institutions will face.

Finally, it is necessary to speed up the deployment of technology, free from unemployment fears and with clear measures, helping the sectors that lead innovation to sit back and wait. We are not going to solve anything by regretting the drop in tourists, on whom 14% of employment depends in Spain, or the drop in car sales, on

which 10% of the working population depends, as these are consequences of a needed shift.

The conversation is not about lists of jobs that are going to be destroyed by robots. There will be many cases where it will be like this. It has always happened with any technological advance. The interesting topic is not that professionals are going to be replaced, but that new professionals, using technology to work, will continue in similar ways. Don't worry about a robot coming to take away your job. Worry that someone who gets along better than you with a robot will take away your job. That's what it is about. That is the urgent topic to understand. Those are the competences we require for this digital transformation.

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5. The Teacher as an Adult Learner

By Ingūna Irbīte

The objective of education is to prepare pupils for the ever-changing labour market and active citizenship in the world of today and in the future world – more diverse, mobile, digital and global. The improvement of digital competences is an essential prerequisite for the development of other competences, especially those that are connected with the personal development, learning competence and civic competence. Teachers face a twofold challenge of the digital age – it includes not only the capacity to be digitally competent themselves but also the ability to develop pupils as knowledgeable and responsible citizens in the age of digital transformation. This article looks upon the issues of digital transformation in education, mainly paying attention to teachers as adult learners and challenges that are connected with teachers' digital transformation. Digital processes on the whole have a global, cross-border character. However, the historical and geopolitical contexts assign specific dimensions of digital challenges to particular countries and regions. Therefore, the case of Latvia, analysed in the present article, can be perceived also as the representation of the experience of a wider geopolitical space. At present, the spring of 2020, at the time of writing this article, the analysis of any sphere inevitably leads to the division of "before" and "after" - before and after the crisis caused by the coronavirus. The article also analyses the first lessons about the impact of the crisis on education and teachers' digital transformation.

  The article consists of five sections - digital transformation in education, the framework of educators' digital competence, the social context of education in Latvia, teachers' digital competence and the impact of the virus crisis on the digital transformation in education.

Digital Transformation in Education

In 2006 the European Commission prepared recommendations on the key competences for lifelong learning, which include knowledge, skills, and attitudes needed by all for personal fulfilment and development, healthy and sustainable lifestyle, employability, social inclusion and active citizenship. During these years, the framework of key

competences has been specified and supplemented. The new edition of recommendations names literacy competence, multilingual competence, mathematical competence and competence in science, technology and engineering, digital competence, personal, social and learning to learn competence, citizenship competence, entrepreneurship competence, cultural awareness and expression competence (EU 2018/C 189/01). The member states of the European Union base their strategic policy documents on this competence framework.

Digital transformation applies to all spheres of social life, including education. Different processes related to digital changes are taking place simultaneously in the education environment. It is the digitalisation of information and resources – the analogous information is converted into the digital one, applying the possibilities offered by technologies. For instance, electronic learning materials are prepared, "analogous" textbooks are scanned. There is the digitalisation of school as an organisation. E-school management systems and electronic data bases are introduced, e-identification is functioning, e-learning is taking place using computers, tablets, smart phones, applications. This all leads to digital transformation of education – the change of the existing learning and school management models, changes of stakeholders' patterns, changes in the legal and policy framework of education, changes in the corporate culture of education institutions and transformations in the education philosophy itself – the views on the aims of learning, the pupil and teacher's roles and responsibility, etc. Digital transformation in education is both the possibility and challenge. Researchers are of the same opinion that true digital transformation does not mean the introduction of ever new technological innovations, but rather a matter of culture. There are sufficient technologies at school but it does not help if there are no accompanying changes of teachers' and pupils' mindsets.

Dr. George Westerman, lecturer at Massachusetts Institute of Technology, uses the following analogy: "Digital transformation is using technology to radically improve the performance and reach of an organisation. When digital transformation is done right, it's like a caterpillar turning into a butterfly, but when done wrong – all you have is a really fast caterpillar" (Westerman, 2014).

The concept of competence, which includes knowledge, skills, attitude and motivation demonstrated in action (applied), is intrinsic for understanding the digital transformation in education. Nowadays, new digital tools and digital solutions emerge to satisfy the learning and teaching needs. Besides, they become more accessible to wider consumption. Digital possibilities bring along the demand for respective skills. Today everyone needs the digital competence – children, adolescents and adults. The most important feature of the digital competence is that it has to be continuously updated and supplemented because the digital world is changing all the time. Therefore, during the age of digital transformation, we all are forced to be lifelong learners. The digital competence is an essential instrument for every individual to achieve professional growth and personal satisfaction as well as to be able to function

in the society as an effective and active citizen. Teachers face a twofold challenge of the digital age – it includes not only the capacity to be digitally competent themselves but also the ability to develop pupils as knowledgeable and responsible citizens in the age of digital transformation. Today's first graders will finish their active employment at the end of the 21st century. They will form all their professional and personal life in conditions which we cannot predict and calculate precisely. The education system faces a huge challenge to prepare pupils for the professions that do not even exist yet, to teach them to solve problems of which we are not yet aware. But one thing is clear – the developments in the world of technologies will affect every sphere of our pupils' future professional and personal activities.

The digital competence has invariably been present among the key competences since the initial development of the framework. Nowadays, the digital competence is as important as reading and writing literacy. Researches prove that the improvement of digital competences is the intrinsic prerequisite for the development of other competences, especially those connected with personal development, the learning competence and civic competence (OECD, 2015). The digital competence includes five areas - information and data literacy, communication and collaboration, digital content creation and safety and problem solving (Carretero et al., 2017). Europe, in the field of digital competence is far from the ideal, even if we speak only about average information and data literacy level. Data show that 44% of Europeans have a low level of digital skills, and 19% of the population have no such skills at all (DESI, 2019).

The Framework of Educators' Digital Competence

The education sector has a decisively important role in the development of the digital competence. This is confirmed also by the fact that education content reforms related to the digital competence at present are taking place in half of the European countries (Redecker, 2017). The present article focuses more on the teachers' digital competence in the age of digital transformation. The majority of European education systems have standards of teachers' professional competence which include also the digital competence. The understanding about the content of educators' digital competence in European countries differs, though not radically. The generally acknowledged framework documents, namely, the EU Digital competence standard for individuals, Digital competence standard for educators, UNESCO ICT standard for teachers, etc., have served as the basis for developing the national standards in the field of teachers' digital competence. The analysis of the above-mentioned documents as well as the analysis of the national standards provide an insight into the most essential areas of teachers' digital competence - digital pedagogy, digital resource management, digital competence for communication and cooperation, digital safety and digital identity

management, as well as the digital competence for active citizenship. A more detailed view on each area can be seen in the text box below.

Areas of teachers' digital competence

Digital pedagogy – the organisation of the teaching/learning process, giving the feedback, evaluation of the academic achievement with the help of ICT

Digital resource management – selection, use and creation of the digital learning and methodological resources

Digital competence for communication and cooperation – communication via e-platforms, sharing resources, joint online work with all the participants of the education process (colleagues, pupils, parents, experts, authorities)

Digital identity management and digital safety – responsible behaviour on-line, data protection and privacy, the use of ICT for creating a professional image, the environmentally and health-friendly use of digital tools

Digital competence for active citizenship – the use of digital gadgets and applications for influencing social processes, the awareness of equality and inclusion issues in the context of technologies

An adult learner is someone who has an independent self-concept and who can direct his or her own learning, has accumulated a reservoir of life experiences that is a rich resource for learning, has learning needs closely related to changing social roles, is problem-centred and interested in immediate application of knowledge, and is motivated to learn by internal rather than external factors (Gregson & Sturko, 2007). These features, on the whole, can be attributed to the teacher as an adult learner. However, it should be admitted that the context of the digital competence also has its specifics. The previous life experience as a rich learning resource can be used indirectly and on a limited scale. The issue about the learning motivation is a complex one. Both the internal and external motivation are present in the area of the digital competence. The internal motivation defines the teachers' willingness to follow the modern professional development trends, including the improvement of the digital competence. The external pressure activates the external motivation in particular cases. For instance, the external motivation is activated at present when, due to the coronavirus crisis, teachers are unable to perform their professional duties because they lack a certain level of the digital competence.

Social Context of Education in Latvia

In order to understand better the digital transformation in the field of education in Latvia, it is necessary to look at a broader social context. During the last 30 years, a

fundamental transformation of education from the Soviet and post-Soviet model to modern education rooted in democracy values has taken place in Latvia. The physical environment of education, the teaching/learning content and policy documents regulating it have changed as well as those involved in the education process and their reciprocal relations. At present, the largest education content reform since the regaining of independence is taking place in country.

These transformations have taken place simultaneously with the digital processes in the society, affecting both the form and content of education. Three allied processes have happened hand in hand – digitalisation of information, digitalisation of the education process and digital transformation of the society. The digital transformation has come with changes in the culture of school as an organisation and changes in the worldview of teachers and school principals.

The social economic, political and demographic context of the country influences the processes in education. Globalisation in the world and the open borders of the EU have brought two decisively important impacts on school life in Latvia – the decrease in the number of the pupils' and the increase of diversity in the classroom.

After the crisis in 2008, due to the economic migration, about 200,000 inhabitants have left Latvia. These were mainly people at working age and families with children. This resulted in the decrease of the number of pupils. Emigration, low birth rate and other demographic changes have led to closing down many schools. The closure of schools or the optimisation of the school network as it is referred to in the political discourse has put issues about the teacher's profession on the agenda – how many teachers are needed in the country, what kind of teachers the society wants, which should be the mechanisms of recruiting teachers.

The change of the pupils' ethnic and linguistic composition has taken place simultaneously with the decrease in the number of pupils. Nowadays, the diversity in classrooms is represented in the most different ways. The OECD emphasises that lately countries have experienced a rise in the concentrations of pupils whose first language is not the language of instruction at school, of pupils from socio-economically disadvantaged homes and of pupils with special needs. The percentage of teachers teaching in classes with more than 10% of pupils whose first language is different from language of instruction on average in OECD countries is 18%. In Latvia, 23% of teachers have this experience (OECD, 2019). It is only a bit more that the average OECD indicator, but Latvia has another principal difference. The increase of culture and language diversity in classrooms has taken place in a very short period of time – approximately during the last decade. All through the previous decades, teachers have taught mainly Latvian and Russian children. Due to the open borders and globalisation processes the representatives of other nationalities have joined the classrooms. The teacher has no difficulty in teaching the Russian-speaking emigrants from the former Soviet Union countries because teachers are culturally and linguistically familiar with the post-Soviet space. There is a much greater pedagogical challenge to ensure the education

process for pupils who come from regions with radically different cultural and linguistic environment. Teachers mention the lack of the intermediary language, the differences in the previous social and learning experience, the challenge to prepare these pupils for the national examination, etc., as the main difficulties in these cases.

The "hottest" education-related themes that are on the current political and social agenda of Latvia are the content issues of the education reform, the preparation of schools and educators for the introduction of the reform, merging or closure of schools, the issue of teachers' salaries, the strategy of human resources in education and the status of the teacher's profession in the society, etc.

In summary, we can describe the teacher's situation as challenging. The educator has to learn a lot to adapt to the education content reform; he/she has to acquire new digital and intercultural communication skills. At the same time, he/she has to feel the psychological strain and the lack of security about the existence of his/her educational institution in the long term and the future of his professional career.

Teachers' Digital Competence and Digital Transformation

There are three important elements in the digital transformation processes – decisions made in the field of education policy, teachers' professional activities and processes taking place in schools as organisations. At present, the largest education content reform since the regaining of independence is taking place in Latvia. The new curriculum includes digital literacy as one of the transversal skills. Digital literacy is defined as a responsible use of technologies in order to acquire, apply and create knowledge, to solve tasks and problems, to share and use the content created by oneself and others, to manage one's digital identity, to communicate effectively and safely with others in the digital environment and to evaluate critically and constructively the role of technologies and media in the society (Skola, 2030). The concept – transversal skills – means that the skills have to be developed at all ages and in all school subjects. Thus, by default it is clear that the cultivation of such skills in pupils requires certain digital mastery on the part of all teachers as well as the provision of the teaching/learning environment with technological means, digital study materials, etc. Further, the article discusses the practical situation in schools - the environment in which the teacher works and the digital portrait of school in Latvia.

Schools have sufficient provision with technologies. The standard equipment of the classroom in more than 95% of educational institutions includes the internet connection, a computer, and a multimedia projector. Almost all schools have smart boards, tablets and other technological tools (Daniela, et al., 2018). Schools in Latvia use two electronic management systems – e-klase (e-class) and mykoob. The systems join

together all the participants of the education process – teachers, school administration, pupils and their parents. These systems state the tasks and lesson timetables, register pupils' academic achievement, school attendance and other data. The systems are partly linked to the repositories of digital teaching/learning resources. There are a number of education platforms that schools use. The most widely used are uzdevumi.lv (exercises.lv) and soma.lv (schoolbag.lv). The most active users of the digital tools are science and mathematics teachers. This can be explained both by the fact that there are many teaching/learning resources in these subjects and the mass-scale professional development on ICT of the science and mathematics teachers that took place some years ago in the frame of a European foundation project.

The understanding of the possibilities of how digital tools can help in other content domains is increasing among teachers. In human rights education and education for democratic citizenship, access to primary sources, documents and databases are important. That data is essential "material" from which pupils can construct their own opinions and convictions. The access to electronic media repositories and the use of social media open broader possibilities for civic education. Data serve well for the analysis of the social process; they promote critical thinking, information literacy and media literacy. For instance, before the elections, different interactive tools were used in the classes for exploring the political parties, or for finding out one's political identity – "Detector of lies", "Try on the party", "Marshalling yard of political parties", "Deputies (MP) spread out before you" a.o. Teachers of civic education use the possibilities of the social initiative portal Manabalss.lv (myvote.lv) widely, both related to the models of electronic voting and offering of social initiatives that are on the topical agenda for the analysis.

As mentioned above, one of the greatest present-day pedagogical challenges is the work in multicultural classes. Educators need the intercultural competence in the broadest sense of this concept. Theory describes the intercultural competence as "the ability to communicate effectively and accordingly in intercultural situations that is based on intercultural knowledge, skills and attitudes" (Deardorff, 2006); "the readiness to adequate action in the interaction with people who represent a different language and/or culture" (Fantini & Tirmizi, 2006); "intercultural literacy is understanding, competence, attitude, identity, participation and linguistic skills that are necessary for successful participation in intercultural activities" (Heyward, 2002), etc. Digital competence makes it easier for the teacher to cope with the intercultural challenges in the class. Education Development Centre has substantial experience in the work of improving intercultural competence in adult education. This experience shows that a digitally competent teacher has many more tools to overcome teaching challenges in a multicultural environment. For instance, such teachers use the platform of resources provided by the Latvian language agency (https://maciunmacies.valoda.lv/), which offers diverse tools (texts, video, games, etc.) in language acquisition.

Besides, it is possible to segment these resources according to the learners' age, skills

and more specific features.

What is the situation with teachers' skills in the field of technologies? Teachers participating in the OECD study have mentioned three skills as the most essential and necessary in professional development – skills in the domain of information and communication technologies, teaching in the multicultural/multilingual environment and teaching pupils with special needs. Out of the mentioned, teachers in Latvia consider the ICT training as the most necessary (OECD, 2019). It is defined in Latvia that every teacher has to do 36 hours of professional development every three years, however, it does not define the content of this professional development.

The choice of concrete professional development courses depends on the strategy of the educational institution in the field of human resources development and the teacher's individual motivations. In practice, the choice is often determined by factors like funding, transport and other availability aspects. Content wise, teachers usually give preference to the courses in the subjects they teach. Lately we can observe an increasing tendency on the part of teachers to choose courses with interdisciplinary content - class management, the development of digital, civic and other competences. The percentage of teachers in Latvia who participated in at least one professional development activity during the last year is 99% (OECD, 2019). Teachers' in-service professional development is the strength of Latvia. Adult education, including teacher education, is of good quality and enjoys old traditions. Programmes are offered by the private sector, universities, NGOs and other stakeholders. Programmes are prepared and ensured from the state and municipality funding, the European Union, foundation funding, etc. There is competition for the clients that ensures the quality of the content. According to the OECD data, the percentage of teachers who felt "well prepared" or "very well prepared" for the use of ICT for teaching is 48% (OECD 43%). The percentage of teachers for whom the "use of ICT for teaching" has been included in their recent professional development activities is 77% (OECD 60%). The percentage of teachers reporting a high level of need for professional development in ICT skills for teaching is 23% (OECD 18%) (OECD, 2019).

The acquisition of a particular software and getting acquainted with the latest teaching/learning resources dominate in the content offer of the ICT programmes. Much less often, the courses look upon more profound issues of digital pedagogy. The understanding that technologies and media are only tools in the teaching/learning process develops slowly. Researchers indicate that the emphasis in the use of technologies in education should be placed not on some concrete tool or media, but on the application of technologies according to the expected outcome (Bates, 2015). Rather than narrowly focusing on the tools, training on ICT skills for teaching should reflect how technology can amplify great teaching and empower teachers to become better instructors.

The project partner organisation, EDC, carried out a study for the needs of the project "Digital Transformation in Adult Learning for Active Citizenship". The study consists of

a survey of teachers and in-depth interviews. The study involved 125 educators who teach different school subjects and pupils of different age groups. The aim of the study was not to obtain sociologically precise measurements but rather to find out the most characteristic opinions and trends. The study took place in January and February 2020, and it stated the situation before the crisis caused by the coronavirus. The crisis caused by the virus has exerted a huge impact on the digitalisation of education. The first lessons learnt from this crisis situation are analysed in the last section of the article.

The study has found that teachers consider the vast possibilities of technologies available in schools, the wide offer of in-service professional development courses, pupils' readiness and interest in learning using the technologies as well as a certain pressure to be "a modern contemporary teacher" to be the most important factors that promote the use of digital tools in education. Teachers admit that the use of technologies is a way to strengthen the authority in pupils' eyes. Sometimes teachers also mention the wider possibilities of the digital content when compared with the "analogous" content, the possibility to diversify the ways of learning as well as their personal enthusiasm and interest in the world of technologies.

The EDC study has also clarified the greatest challenges related to the digital transformation of education. These challenges can be divided into two categories. First, challenges that are connected with the teacher as an educator and learner. Second, challenges that are connected with other stakeholders – school administration, municipality, country, IT professionals, etc.

Challenges Connected with Teachers and the Internal Environment of Education

Digital vs analogue teaching. A part of teachers is convinced that the use of technologies takes away time from the traditional "correct" teaching. Teachers consider that the use of ICT in lessons takes more time. There is a vicious circle – the less frequently technologies are used, the more frequent are the mistakes and the longer the time spent. There is also the lack of external motivation. If the teacher does not wish or is unable to use digital solutions, he can peacefully live in the "analogous" world; he just has to learn to upload pupils' marks in the digital school management systems. The change of the awareness that digital saves time, not steals it has been slow. It refers both to the use of digital possibilities in the subject teaching and class management (the accumulation of pupils' learning history, giving and receiving feedback in a digital way, effective communication with parents, etc.)

Depth of digital pedagogy. The majority of teachers have sufficient skills for using technologies. Besides, both the scope of skills and the number of advanced users continues increasing. However, there is not sufficient deep knowledge about the

didactic strategies and methods of teaching in the work with digital means. Blended learning models, too, are rather an exception than a systematic practice in schools. The technology infrastructure of schools is also not sufficient for the introduction of such models. Teachers also admit that it would be necessary to use more of these technology solutions that promote pupils' creative involvement. The pupils of the 21st century need skills to produce and create because their future careers will depend on creativity and readiness for untraditional solutions.

Pupils – aliens or allies. Consequences caused by the generation gap should be taken into consideration in the digital world more than ever before. Using the terminology by Marc Prensky, the relations between teachers as "digital immigrants" and pupils as "digital natives" are complicated. The distinction between digital natives and digital immigrants is important because it is more cultural than technology-knowledge-based. "Digital immigrants" grew up in a non-digital, pre-internet culture before they experienced the digital one. "Digital natives" know only the digital culture (Prensky, 2001). It is a twofold challenge for the teacher. He/she, as the digital immigrant, must live in the world where part of the knowledge has to be acquired and part of the professional duties have to be performed only with the help of digital tools. Besides, he/she, the digital immigrant, has to "digest" this knowledge to be able to use it as a digital native. However, the majority of teachers admit that pupils are more their allies in the digital world. The allies who quickly restore the sound that has disappeared from the YouTube video demonstrated by the teachers, who share their discoveries in the digital databases, who demonstrate tests, crosswords and mind maps that they themselves have created in digital platforms. Often these have been pupils who have revealed the possibilities of Kahoot, Flipgrid, Eclipsecrossword and other tools to their teachers. Teachers just have to accept it willingly and indulge in taking up the role of the learner.

Learning communities, collaboration and reflection. The use of technologies (skills, motivation) is connected with the teachers' previous experience, their individual teaching and learning style. The teacher has to know himself, he must have skills to analyse and reflect on how I teach and how I learn. Such a tradition is insufficiently developed in the education environment. There are objective reasons for that because the teacher for a very long time has been paid only for the contact hours with pupils. The time for teachers' collaboration and self-reflection has not been paid, planned in the teaching/learning process or stimulated otherwise. Yet, there are deeper roots to this situation. Communication culture was not maintained as a social value in the Soviet space. Hierarchical relations, authoritarian models were dominant in education as in the society on the whole. The consequences are still felt. Teachers point out that the situation has changed significantly only during the last years. Collaboration of different formats among teachers has been defined as one of the priorities in the new reform of the education. In practice, too, teachers acknowledge highly the benefits of peer learning, the formation of small learning communities and providing and receiving

reciprocal support. In the context of digital transformation, this statement has been neatly summarised in a study performed in Spain. The study stated that teachers' use of ICT in the classroom is mainly dependent not only on teacher training in ICT but also on teachers' collaboration with other teachers and teachers' perceived self-efficacy and beliefs about teaching, as well as the availability of educational software or school infrastructure (Gil-Flores et al., 2016).

Challenges Related to Stakeholders and External Environments

Shared responsibility, campaigns and long-term planning. Long-term solutions – strategic planning followed by investments and practical introduction – play an essential role in the digital transformation of the education sector. Long-term solutions are a great challenge. Responsibility in the education sector is shared between the state and municipalities. Technical and material provisions of schools, including digital provisions, mainly depends on municipalities. There should be well-organised collaboration among teachers as users, school administration as the customer and municipality employees as implementers. Besides, the financial possibilities of municipalities to take care of their schools are extremely different.

Is more expensive better? Technologies become outdated very fast. Experts admit that financial investment in expensive gadgets/equipment in education is not purposeful. Data show that there is no direct correlation between material technical investment in ICT and pupils' achievement in international comparative education studies (PISA) (OECD, 2015). It underlines again that technologies as such do not ensure excellent knowledge. A complex approach is the one that pays off, namely, strategic planning of introducing technologies and investment in human capital – the improvement of teachers' digital literacy and digital pedagogy skills.

The role of the state. As mentioned above, on the part of the state, the offer of professional development is sufficient and digital literacy is also included in the new curriculum. However, there is a need for a clearer national strategic vision in the field of digital transformation of education. The state has to take greater responsibility in the coordination among other stakeholders – IT domain, municipalities, and developers of methodological study materials.

Private sector. Most of the digital content offer in education at present is created in the private sector. Entrepreneurs who ensure digital solutions for education admit that the niche of this business is not simple. The relatively small target market and high production expenses minimise the profit part. Usually this is a difficult decision that entrepreneurs have to make – to what extent to offer the users the content free of charge and to what extent as paid content. Thus, a powerful and proactive action on

the part of the state is needed. The cooperation between education professionals and ICT professionals is decisively important in producing qualitative products. A significant prerequisite of success is understanding that high level practicing educators have to be attracted to the creation of the content.

Based on the above, we can conclude that there are two factors exerting a decisive impact on the key to success of digital transformation – educator's internal factors and systemic changes in the stakeholders' collaboration models. Digital transformation is not about technology. Or at least not only about technology. It is more about the *transformation of mindsets* of those involved and *changes in organisational culture.* Digital transformation should take place according to the following causal chain - first of all, the society's consensus about what the aims of education are, then decisions made by professionals concerning the pedagogical means with the help of which to achieve these aims and only thereafter, the solutions for how technologies can support pedagogy.

The Impact of the Coronavirus Crisis on Digital Transformation in Education

At present, the spring of 2020, the analysis of any field inevitably comes to the division between "before" and "after"- before and after the start of the coronavirus crisis.

The pandemic situation in the world has already radically changed the education practice. It is clear that when life returns to normal, the education processes will have changed irreversibly. To little time has passed to evaluate in detail the impact of the coronavirus crisis on education. This section of the article summarises the experience of the first months, the lessons learnt and conclusions that are related to the impact of the pandemic situation on education. Already now, we can say that the introduction of remote (distance) learning has exerted a radical and fundamental impact on teachers' "level of digitalisation". Teachers, until the emergency situation, could largely decide themselves to what extent they allowed the digital world to "enter" their head and classroom. This possibility of choice ceased existing on a concrete day and at a concrete hour. It happened at the moment when the country forbade implementation of face-to-face teaching/learning process. In Latvia, the introduction of the emergency situation and the transition to remote (distance) learning started on 12. March 2020. The most surprising is that the "end of the world" did not come. Having survived a certain reorientation phase, the learning and teaching continues, but in a radically new way.

Positive Impacts of the Remote (distance) Learning as May be Observed during the Coronavirus Crisis

The abrupt replacement of the traditional face-to-face teaching/learning format with the remote (distance) teaching has led to a situation in which teachers are compelled to develop skills in all aspects of digital competence. Teachers use digital tools and resources that they already know. At the same time, they acquire new solutions. Teachers' learning and teaching experience, both regarding the form and the content, has been enriched. Teachers use creative solutions more often and prepare individualised, differentiated tasks for their pupils.

In a new situation, teachers raise their competence mainly through informal learning. The broadening of the borders of teachers' digital worlds takes place in a very practical mode, learning is based on their own experience and that of the others – a classical learning by doing model. Teachers have mobilised their resources – the time, previous knowledge, sometimes also their financial resources. Organised and spontaneous learning communities have emerged. Learning mainly takes place in the digital environment, communicating, using video and the possibilities of micro sharing, etc. Learning is unstructured, non-sequential, learners-led, or rather, even situation-led. Learners act both based on internal and external motivation.

During the pandemic, the non-formal education sector, too, has partly re-oriented its activities and offers to seminars, webinars and other in-service training forms with the awarding of a certificate at the end of training. However, at present there is no great demand for such learning. It is mainly because the transition to a remote (distance) study process has taken place following the "fire-extinguishing" scenario, when life demands fast, quickly adaptable solutions, not sequential, consecutive and structured learning.

Such previously unshakable cornerstones of the education process, such as the lesson, school subject, classroom, home tasks, etc. have been rocked. Before the crisis, we knew in theory that the contemporary life is interdisciplinary, multidisciplinary and so the teaching/learning process should follow this reality. Nevertheless, the school practice has preserved rather strict boundaries of academic disciplines. The crisis has accelerated these changes. During remote (distance) learning, some academic disciplines at school are merging some are abandoned. Applying the digital tools, teachers create excellent interdisciplinary solutions. This is the answer to the challenge of the age in which "the traditional and well-established knowledge no longer suffices to understand the world and to address the major questions of the 21st century. The basic knowledge of Generation Y cannot be reduced to "read, write, and count"; knowledge cannot be reduced to the addition of traditional school subjects" (Cornu, 2011). Certainly, what is happening at present is an experiment. We do not know the resulting consequences. Yet it is important that such experience have been acquired and will be possible to analyse later.

There are things which pupils especially like in the new model. It has given pupils a

chance to demonstrate new qualities, to apply different learning styles, to step out of their traditional roles, to participate in self-guided learning and inquiry learning. The remote (distance) learning has allowed teachers to get to know their pupils from an unfamiliar angle.

Companies that offer digital tools for the education environment have also livened up. The capacity of the existing platforms has been improved, new products have been created, new possibilities for teachers to master the online content resources have arisen, and there is increasing use of technical tools and cooperation platforms in the remote format. The majority of private sector platforms have already made their resources and services freely available to schools to expand the distant teaching/learning capacity. During the crisis, the environment of the education business demonstrated such civic virtues as social responsibility and solidarity that has promoted the recognition of the companies and has augmented the social capital of their businesses. It is interesting that teachers are offered also digital solutions for receiving psychological support on how to cope with the stress caused by the new situation.

Several excellent examples of cooperation solutions between the state and private sectors have been demonstrated during the crisis. For instance, at the beginning of the remote (distance) learning, it turned out that 5,000 pupils (3%) did not have a computer or any other smart device at home. The Ministry of Education and Science, in cooperation with local municipalities and leading telecommunication companies, solved this problem at short notice.

Challenges of Remote Learning as Could be Observed in the Coronavirus Crisis

Physical and emotional health of teachers, pupils and parents: Teaching/learning is interaction, communication, event and adventure. Live interaction is something that is missed during remote (distance) learning. Pupils lack the teacher's smile, look, public praise, their friends and time spent together playing. During social distancing, people are swept up by monotony and loneliness. Teachers lack the lively interactions in the classroom, the possibility to feel the pupils through their non-verbal expressions, to monitor their mood, the understanding of the study material. Teachers lack face-to-face discussions with their colleagues, pedagogical support and acknowledgement. Data show that during remote learning pupils, teachers and parents work more. The greatest challenges of remote (distance) learning for teachers is the additional workload (44%), preparation of new learning materials or adjustment of materials (37%) and giving a remote feedback to pupils (32%) (Ministry of Education data).

Remote (distance) learning has shown that there are skills that pupils can develop only in a limited scope digitally. These are public performances, the discussion culture,

argument-based reasoning, the ability to ask questions, etc. The balance between the digital and screen-free education activities has been bungled. Will education be able to restore this equilibrium when the crisis has ended?

Closer relations among communities, homes and schools. Parents involuntarily have stepped into the teachers' shoes. Mothers and fathers have partly taken over the teachers' functions, especially in families with younger pupils. What consequences will it lead to? Probably, it will allow society to appreciate the difficulty and responsibility of the teacher's profession. But it may also escalate the parent and teacher relations. Already now, lots of dissatisfaction is directed towards teachers regarding the too bulky, too difficult, too boring or otherwise unsuitable tasks. Yet, it is too early to draw conclusions.

Challenges related to the assessment of pupils and giving of feedback. Schools have been obliged to reconsider the practised assessment models. The current assessment system has been largely based on the pupil's ability to memorise and reproduce certain knowledge. It is too complicated to check and assess the knowledge this way during remote (distance) learning. Therefore, the teacher has to think more about which learning outcomes should be measured and in what way to do so. Providing feedback in remote (distance) learning also demands more time from the teacher.

The impact on the mode of teacher learning. Up to now, the most attended forms of professional development have been courses or seminars. The crisis has presented the possibilities of peer/self-observation, coaching, and networking, especially in the acquisition of digital solutions. However, it is clear that the learning solutions of the crisis period have just been about fire extinguishing. This does not cancel the meaning and importance of structured and successive professional development. Will there be a return to it and how will the return take place?

The impact on digital identity management and digital safety. Digital identity is sometimes also called "digital tattoo". Digital identity in the virtual world tells about us as a personal and professional. Due to remote learning teachers' online presence has increased. It challenges how to keep one's own digital identity under control, present a competent and positive digital image, not subject him/herself to cyberbullying risks when installing and using a new software, and to be safe.

Issues of the human rights and civic domain that we think about during the COVID-19 crisis: The big question is how not to weaken democracy. Apologies that the crisis demands fast solutions and technical possibilities created by digitalisation can make people question the necessity of making democratic decisions. This refers both to decisions made at school and class levels and decisions made on the national level. On the other hand, democracy has acquired new faces. For example, pupils participated actively in expressing their opinion whether this year there should be school leaving examinations and if yes, then in which form; they expressed their opinion via social media by participating in the survey initiated by the Ministry of Education and Science, by organising the exchange of opinions themselves, and even writing a public/open

letter to the minister of education.

The crisis has activated the topics of data protection and privacy. Societies often ask questions about how big a part of our privacy and personal freedom we are ready to hand over for the sake of safety. Technological possibilities of the digital world allow violating the boundaries of privacy in a flash. How do we teach pupils about balance between safety and privacy?

Issues related to the accessibility of education. The ministry, together with telecommunication companies, provided children with missing computers for remote (distance) learning quickly. But we cannot find the solutions so quickly in case of broader accessibility aspects – such as how remote (distance) learning will affect pupils with special learning needs; how children whose parents are unable to give support during remote learning, etc.

The crises has made people reconsider their attitude towards the country. How successfully is the country fighting the pandemic? How successfully is the country saving the economy? How successfully does the country manage changes in education? How successfully does the country support teachers, pupils and parents? This assessment will influence the relations between the state and society after the crisis. Will these relations be closer, more understanding? Or will it be just the opposite – some social and professional groups bearing the offence for insufficient support. There will be the same re-assessment concerning the people's attitude to the European Union institutions, the solidarity of European countries, the future of Europe's project.

The crisis has put the issues of media literacy and critical thinking under the magnifying glass. During social distancing, media as information channels have enjoyed a much greater role. The media usage practice during the crisis is the litmus test for the society at large and educators. Is the society media literate and critically thinking?; does it trust the experts and science or fake news and panacea?

It is undoubtable that due to the crisis, we use more digital technologies. It is clear that after the crisis teachers will know much better the digital tools, resources and cooperation platforms. However, the question is - will this have a long-term positive impact on teachers as professionals, on their mutual collaboration, on pupils' learning outcomes, on a more favourable learning environment? Will the new experience have a lasting positive impact on more effective teaching and learning? Will the of the learning paradigm change itself? Will fundamental changes in the teaching/learning content, structure, organisation of the education process and assessment have taken place? Time will give answers to these questions. Returning to the simile mentioned at the beginning of the article – only in time will we see whether the caterpillar will have turned into a butterfly, or whether we will still have just a really fast caterpillar.

Conclusion

Digital transformation is not about technology. Or at least not only about technology. It is more about the transformation of mindsets of those involved and changes in the organisational culture.

Reflecting about educators and teachers in the transformation situation, digital competence becomes itself a tool for competence development, since it relates to vast dimensions of education and life.

The same wider contextual position applies to the role of teachers in the digital age – it includes not only the capacity to be digitally competent themselves but also the ability to support learners/pupils as knowledgeable and responsible citizens in the age of digital transformation and ethical responsibility.

Evidence suggests that the majority of teachers have sufficient skills to use technologies. Besides, both the scope of skills and the number of advanced users continues increasing. However, there is not sufficient deep knowledge about the didactic strategies and methods of teaching in the work with digital means.

When describing challenges that hinder from meaningful digital transformation in education, the article provides evidence-based important conclusions: there are two factors exerting a decisive impact on the key of success of digital transformation – educator's internal factors and systemic changes in the stakeholders' collaboration models. Digital transformation in education thus should orient on a causal chain: first, the society's consensus about what the aims of education are, second decisions made by professionals concerning the pedagogical means with the help of which to achieve these aims and, integrating the logic of a lifelong learning approach covering vast areas of education and learning. Last and only then, the solutions as to how technologies can support pedagogy.

Putting the focus in the article on the impact of the coronavirus crisis on the digital transformation in education, there is to conclude: the introduction of the remote (distance) learning has exerted a radical and fundamental impact on teachers' "level of digitalisation". A costs–benefits analysis emphasises both positive impacts of the remote (distance) learning caused by the coronavirus crisis, for instance - applying digital tools, creative interdisciplinary solutions and cooperation between the state and private sector. However, these costs are high: there have been issues of accessibility in the case of learners/ families/groups at risk, of special needs' learners as well as in the physical and emotional health of teachers, pupils and parents, as these emerge and are not sufficiently recovering from the challenges posed by Covid 19. Similarly, as in the case assessment of Latvia, the results of the Research-based Analysis and Monitoring of European Youth Programmes (RAY network) on "Youth Work and the Corona Pandemic in Europe" states the loss of the most vulnerable target groups as one of the biggest effects of the pandemic in European Youth Work (Karsten, et al., 2020).

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6. On Didactics

There is no Digital Didactics

By Jöran Muuß-Meerholz

"Digital didactics" - what a great term! Even the alliteration is beautiful. And more than that, it sounds like a conclusive answer to the many big questions that arise for learning and teaching in the face of digital change. It is no wonder that digital didactics is in demand: journalists are looking for it, activists promise it and schools advertise with it. At second glance, however, one recognizes more doubts than certainties. And at third glance, talk of "digital didactics" is not only misleading, but also dangerous.

Is Digital Better?

Technology is neither good nor bad; nor is it neutral (Kranzberg, 1986). This can be applied to the didactic question. Learning or teaching does not become better or worse per se through the use of modern technology, but there is no doubt that digital technologies are changing learning and teaching. Certain characteristics of digital technologies fit particularly well with certain didactic directions – but not in any particular direction. A teaching-learning setting with digital materials, tools, and communication channels can have very different didactic directions.

At one extreme, technology enables teachers to exert a high degree of control and steer the learning process. (Here we imagine "teachers" as a combination of people and programmes). The learner follows a predetermined learning path, which in the ideal scenario is individually adapted for each person over the course of learning. Digital technology thus enables the implementation of behaviouristic didactics in pure form.

At the other extreme, the use of technology lies in the hands of the learner, who experiences quasi empowerment in the digital world: All means, materials and fellow learners are open to him. Learners do not follow a learning path – they design it themselves. It is therefore no wonder that constructivist representatives of the digital change see the greatest potential for learning as an active, self-directed, creative, social process.

Civic Education

Digital technology can optimize various forms of didactics and perhaps even make them possible in the first place. A homogenous digital didactic does not exist. The same digital technology can support very different didactics.

Ultimately, there is the fundamental political question of power that lies behind this concept: Who, teacher or learner, decides on the concrete use of digital media? Are learners subject to a process or do they have control over it? The question of digital didactics is a political question

Old Didactics with Modern Media

The debate must not be based on technology, but on didactics! That sounds banal. But in everyday life, it is often the other way around – and talk of digital didactics promotes just that. One puts the digital at the beginning, not only linguistically. This obscures the fundamental questions, such as whether digital media are used to implement didactics oriented towards activation or didactics oriented towards control.

[...]

Terms such as „Germany's most modern school" (self-designation of Schloss Neubeuern) are oriented towards technology, not didactics. Modern technologies do not make for a modern school. On the contrary, when things go badly, digitalisation optimises and cements old didactics.

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I Know How to Teach, Do I Know How to Do it Digitally?

By Learning Designers / By Ramón Martínez

Through COVID-19 pandemic, from one day to the next, the entire world participates in a global scale experiment of digital education.

Education providers who use constructive learning methods in lectures and residential seminars often fall back to passive teaching methods when translated into the online

sphere. This is a normal situation when we have in mind that the educator is good with theory but might be less familiar with online learning technology. This is specifically relevant for situations in which there is no time to adapt the methodology to the new environment or to invest time and resources in testing different options.

As lifelong learners themselves, many educational practitioners have discovered the rough way that online education is not as simple as we used to describe it or as we experienced it when it represented symbolic elements of a longer process and involved a minority of students. This fast-path process brought a series of frustrations, as it ignited creativity and innovation, the consequences of which we will experience in the coming years.

In a world where the most-desired competences involve critical thinking and adaptability and where knowledge can get outdated in every field in a matter of days, online education is not different. The ability of the educator to adapt quickly to technology is vital, as technology is evolving and improving at very fast rates.

Learning is a complex process with no right answer and many options. A clear recommendation for adapting our learning processes to a new environment is to follow research to identify which factors impact on our learning context and how we work with them. Unfortunately, it is easy to find conflicting research that makes harder to determine the best approach, so we will always need to bring our opinion and preferences to the process.

As Learning designers and educational practitioners we need to undertake huge efforts join to translate and optimise face to face programmes into the online environment with the aim to make them the most engaging and effective for the learner. Out of common elements such as a clear definition of learning outcomes and learning about participants interests and needs, we will look at a couple of specific examples from the digital transformation.

Learners construct their best learning mainly through experiencing something and reflecting on that experience. Believing in this added value of the experiential learning cycle for the different learning styles of learners, a learning process needs to create active learning experiences. These experiences are the base to connect concepts to the real world.

Being far away from each other, creativity might be required to build online shared experiences. Complementarily, we can't forget that every online participant in a process is based on a local environment. Search for options to enhance the experience of the communities where the learner forms part. The same counts for assignments, the amount of time, resources and effort you are asking from your learners. The more realistic and achievable it is, the higher the chance students will engage in the process.

A second element to be aware of in these re-designing processes, that is directly connected, is the concept of time. Time is completely different between face-to-face and online interaction. Concentration is different in front of a screen than with each other. It is not the same to organize a six-hour long conference day or a three-day long seminar

in physical and digital form. While the digital environment might benefit from shorter sessions, they allow the activities to be spread along days, weeks or months.

In the same way, activities that don't require the complete group to be together don't require it to be done at the same time. The classic, not highly creative, concept of plenary discussion + breakout groups work + plenary conclusions can be transformed into a recorded introduction that each participant can watch when they find it best for their learning and their schedule, a group task for which participants can self-organize their meeting and a final online meeting with all participants to share each experience, build on the content or shape conclusions.

In a world with different learning preferences and busy schedules, giving more independence to students to organize their learning schedule through clear steps and deadlines also supports their self-directed learning competences.

A last important aspect to highlight is how a direct translation of face to face methodologies into online education creates online learning experiences that have a focus on reading and listening, at times becoming bidirectional. This approach overlooks the social aspects of learning, which we already rank of high importance for a holistic development of the student.

Social learning is a method for education in which the learning process is driven by the community and activities are strategically designed to support the process. As the Web evolved from being a bulletin board with information into Web 2.0 interactive spaces, an online learning environment needs to take advantage of these community elements.

For online education to include social learning, we can consider during the learning design process how the environment will encourage the students to connect with each other, interact as a community and engage with the course content. An assignment can be delivered by email or through an app or website, reaching directly the training instructor and closing the process. This is still useful and necessary when the content is private or there is a need for confidentiality. For other tasks and assignments, we can take advantage of the tools and processes that students already know in order to bridge this social gap. Students can share their assignments publicly in their social media, a common website or blogging platform. Instructor review can be supported by peer-review in the form of comments and through different forms of reaction from likes to emojis or animated images.

Rethinking the learning experiences that we create for our students in the digital sphere requires us to relearn how we build processes and how the digital environment works. This awareness of the medium is what will make a difference in the motivation and engagement of students, the quality of the process and the final outcomes. What can you do differently to have a higher impact?

LEARNING FOR DIGITALISATION

DIGITAL DIVIDE

DIGITAL COMPETENCE

LEARNING THROUGH DIGITALISATION

LEARNING ABOUT DIGITALISATION

VERTICAL

FRONTAL

OPEN

HORIZONTAL

DECENTRAL

TEACHING & LEARNING

7. Future of Recognition?

Digital technologies allow new approaches for the design, conduction, evaluation, and recognition of learning. Some of them, such as blockchain, seem to have become a new technical standard for transactions, of which also learning and education can benefit. There is an opportunity to come to a far more learner-centred form of education and training, which has the potential to connect to the strengths of non-formal learning settings (voluntarism, learner-centred, holistic), while at the same time evolving toward a lifelong learning perspective bridging several educational fields. From an EDC/HRE perspective, however, certain standards such as privacy rights, ownership, or control over the learner's own biography and identity should be closely considered.

After introducing several of possible technologies already in place, this chapter introduces two practical examples of micro-credentials implementation in the field of education.

Open badges as a tool in non-formal education shows the practical case of the use of micro-credentials for competences acquisition and recognition in the educational activities of CGE Erfurt in local and international trainings, seminars and youth exchanges and the learning process they build around it.

AppRaiser showcases avenues for self-assessment and structured learning, a companion tool created for educational practitioners professional development. This tool includes elements that support the self-assessment process and contribute to the work of recognition of non-formal education acquired competences thanks to a process of peer-to-peer validation and feedback.

Blockchain, Smart Contracts, Micro-Credentialing

During the last years, blockchain has become a technology in which a lot of hope has been invested. In line with the inception of Bitcoin in 2009, blockchain is spreading and has become a catalyst for change in many industries as digital identification, medical records and agriculture - backing a revolution in global economy. How is blockchain also connected and shaking up education?

We start with the most basic digital literacy elements: Computers, phones and

digital gadgets work with binary code. This binary code represents text, computer processor instructions, or any other data using a two-symbol system of zeros and ones. Code is used to tell a computer what to do. And before you write code you need an algorithm.

An algorithm is a list of rules to follow in order to solve a problem. Algorithms follow steps, and they need to be in the right order in order to work. In the same way as a morning routine, only the superheroes will put on their pants before their underwear. What if one applies shower gel after drying? That wouldn't make sense.

When writing an algorithm, the order of the instructions is very important. If you'd like to cook dinner for your family, the helpful algorithm is a recipe. You can find this algorithmic instruction in a cookbook or by calling someone to provide step-by-step assistance.

Can't you find your uncle's home? The algorithm you need is a set of directions to get to the house. There might be different ways, so you can have different algorithms for the fastest or shorter route, or the one that goes through more beautiful sites.

Finally, do you want to get recognition of the new competences you learnt? The algorithm starts to get more complicated. You could finish your formal education path, pass all exams and evaluations and get a diploma or form of proof from the institution. This is usually called validation.

Alternatively, you could simply go through the process and report on it. If you need proof, you can ask for confirmation from someone who was involved or knows it is true. Or others recognise your learning, for instance if a society accepts your civic competence acquired through volunteer work or your employer recognises your competences acquired from your hobbies.

Regarding education and learning, the standard way of centralised validation is that of publically governed trusted bodies, or of bodies that are given the mandate by enough organisations in order to have a private recognition system (mostly the case in further education and training) . There are several problems connected to centralisation and trust. The records might get lost in a

Validation:
The certified confirmation of a competent body that learning outcomes have been identified and documented, according to a standard.

Recognition:
Awareness and appreciation of competences. Self-recognition is personal awareness and assessment of learning outcomes and the ability to use these. Social recognition and political recognition describe how others acknowledge and describe the competence of a learner.

Formal recognition:
describes and compares learning, often in the form of certificates, licenses, or similar, issued by a recognised formal or non-formal educational institution, which is authorised to grant a recognised certificate.

fire, the university database could be hacked and marks edited, perhaps corruption is uncovered which provided diplomas without completion of the work required, or there are exaggerations in curriculums or forgery of diplomas. A common experience in Europe is that certificates or diplomas got lost, which happened to many people seeking shelter in Europe. Although the cases shown are not the norm, there are enough examples to prompt us to think about alternatives.

Regarding softer or more non-formal forms of recognition, the trustworthiness and credibility of a validated certificates need often to be compensated. For instance, the testimonial of an organisation from abroad is used that is suspected of being non-existing, or the CEO who has recommended you is widely recognized among his peers as incompetent. Or a participation certificate for a seminar does not express what was accomplished and learned. Also it might happen that nobody was interested or able to give proof of your competence, or that it is not relevant to you, as a study about the state of validation in the field of volunteering unveiled: "Not all volunteers, organisations or employers consider recognition an important part of the volunteering experience" (Bouvin & Baez, 2020, p. 13).

Blockchain, an Incorruptible Track Record

In a more and more digitalised educational environment, the questions of recognition and of validation have again received more attention. Therefore, several solutions and technical instruments have been set up. Most of them fit the model of the so-called individual learning accounts (ILA), for which several models work. So the French "Compte Personnel de Formation", which is a mixture of of education account, (where one receives a voucher for further training) and also it is includes documentation of the trainings that were attended through it. The OECD provided helpful insights that such ILAs are good for portability of training rights, making employees independent from their employees (obviously only together with state funding for trainings). However, so far the individual learning accounts seem to be often implemented with good intentions, while factually, due to the digital divide, some social groups lack resulting benefits

Some people expect Blockchain to offer a solution. As its name clearly shows, blockchain is a chain of blocks of code. A new block is added to the personal educational blockchain with codified and secure information, for example after completion of a six week internship with a foundation. Normally, people could add misleading information, such as adding months to the internship or exaggerating the tasks, but blockchain algorithm makes sure this doesn't happen.

Thanks to the blockchain algorithm, the network is an accurate record keeper. Each block of information stores its data and is linked to other blocks when:
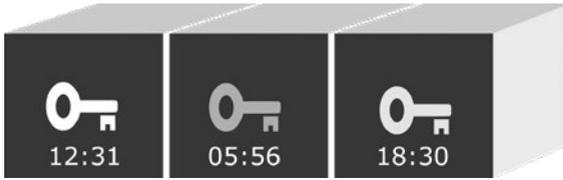
someone requests the creation of a new block;
the request reaches the peer to peer network made of multiple users;
the network of users could validate the transaction through the blockchain algorithm;
once verified by the network, a new digital block of data is created and added to the other digital blocks;
finally the transaction is complete and the data is stored in the blockchain indefinitely
.

Blockchain is a peer to peer network. This means, it is in the computers of all users who connect together. Because this is a decentralized and distributed system, the involvement of a third party or middleman is not necessary.

On the surface, this structure may sound incredibly risky. However, it actually provides users with a strong sense of reliability and authenticity.
This is where code and algorithms come in. The blockchain algorithm is able to remove a central authority due to following approach.

Each user stores a complete copy of the blockchain information.
Each user has to approve each entry.
The version with the most copies is the "true" version.

Through this process, blockchain becomes a candidate for record-keeping, becoming an ideal tool to proof intellectual property, credentials or academic records.

Summarising this, blockchain offers a new hardened way to store proofs of learning outcome, relevant for recognition and validation. In continuation of earlier approaches in this direction, think of YouthPass, EuroPASS or digital portfolio tools, which simply put data together digitally, blockchain is doing it in an incorruptible, secure and decentralized form.
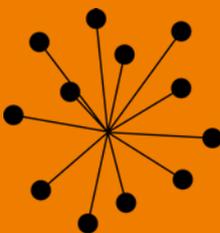
Centralized   Decentralized   Distributed
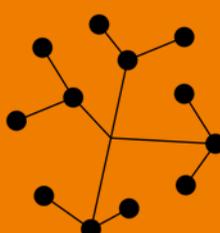
Blockchain technology furthermore allows for the user to certify their identity without needing to share the underlying data that makes up that identity. Technically the personal data would be stored on a device to which only learners have access and control. A hash of that data, whether consisting of claims or digital documents, may be stored on the blockchain. In other words, the blockchain file would be compared with the personal file, and if the hash is congruent with the entry, this would be signaled. The truthfulness of that data would be certified by third parties (and also partially stored in the personal file and as hashes in the blockchain) (Grech & Camilleri, 2017, p. 33).

Positive Aspects - Rights Conditions – Challenges of Blockchain Technology

Benefits from incorporating blockchain technology into education:
An increase in transparency
Keeping records safe and easily accessible in the cloud
Making credentials easier to verify by learners, institutions and employers
Accountability and tracking by way of smart contracts
Incentivising the need to learn and its outcome
Opening the gate for micro-credentials and competence development

Conditions from a learner's perspective
Independence: The recipient owns the credential, and does not require the issuer or verifying third-party to be involved after receiving the credential;
Ownership: The recipient may prove ownership of the credential;
Control: The recipient has control over how they curate credentials they own. They may choose to associate credentials with an established profile or not;
Verifiability: The credential is verifiable by third parties, like employers, admissions committees, and verification organisations;
Permanence: The credential is a permanent record
(according to Grech & Cammilleri, 2017)

Challenges of blockchain technology
Storing full records is resource intensive. In order to reduce energy consumption and costs, it is possible to store only hashes of full records and access blockchains with those records.
Process to achieve the "right to be forgotten" when requested.
A broad and just implementation would rely on agreed open standards and safe providers.
(according to Grech & Cammilleri, 2017)

Smart Contracts

Another scenario for the usage of blockchain are "smart contracts" with specific instructions in their code. Educational practitioners, institutions and learners could, for instance, partake in a digital agreement that describes an assignment's requirements, due date and deadline.

   Smart contracts, like traditional contracts, declare an obligation between two parties. The difference, however, is that smart contracts then verify and execute the agreed upon terms automatically, ensuring the parties involved cannot deny the terms and no third parties can interfere with the terms – and it's all based on a few simple lines of code.

   Smart contracts have the potential to level the playing field, removing the cost, time, and bureaucracy from the process of drafting and enforcing the agreed upon terms. However hierarchies, inherent inequalities also can be problematic, since we can not assume that contractors share a level playing field. Since smart contracts do not genuinely refer to mediating and negotiating authorities, such the needs of those potentialy disadvantaged are not sufficiently considered. Whereas traditional contracts use natural (or legal) language to communicate and execute terms and conditions, smart contracts are currently built on computer code, which builds a parallel legal ecosystem, Lex Cryptographia, not yet defined but emerging as a field of law.

   The idea comes from Nick Szabo, a computer scientist and cryptographer, who uses the concept of the vending machine to provide a simple example of how a transaction can be automatically processed:

   You feed in the money, press the button, and lo and behold, receive your chosen beverage.
   Or, if you don't want a drink, you don't put money in and the soda doesn't come out!

The difference with smart contracts is that there is no third party, so there is no need to trust anyone, because the whole mechanism is secured by blockchain consensus. Code and account balances of smart contracts can be publicly verified to ensure fairness and transparency, removing the need for trust.

Micro-credentials

As it is more simple to keep a record, it is possible to work with smaller independent learning processes to describe competences in a more specific way. While a diploma for each independent class attended would cause too much administrative work, now they are part of the blockchain code. Such tokenisation is gradually becoming the backbone of blockchain. Tokenisation provides this gamification aspect to education, which can be encouraging and positive.

Smart contracts and tokenisation support a rise in micro-credentials, sort of mini-degrees or certifications in a specific topic area. They can either be broad, such as "Citizenship Education" or specific, like "Using Digital Tools for Community Peacebuilding". Micro-credentials can be grouped into larger credentials, degrees or be part of a portfolio. Short Learning Programmes (SLP) are a group of courses or units with a common subject and typically part of a larger degree. To earn a micro-credential or STP, you would need to complete a certain number of activities, assessments, or projects related to the topic, for instance, five to 30 European Credit Transfer Systems Points (ECTS) for an STP. Once you've completed the requirements, you submit your work in order to add the credential to your blockchain record.

In 2019, the country of Malta became the "blockchain island". In a significant move for blockchain and education, the Maltese government signed a contract that would permit all educational records in the country to be put into storage on a blockchain. Non-formal education and out of school activities are joining this blockchain. Other proposals, such as the French model of the "Compte Personnel de Formation", offer similar tools keeping centralised management other than blockchain itself.

It is important to see that the instruments introduced do not technically depend on each other in their implementation. There is no pre-condition of setting in practice the one element on the basis of the other. At this stage, one can state that there is a wide and technologically open experimentation going on, which is partially also fed by the lasting European discourses on recognition and validation of learning, from the implementation and lessons learned within the European Qualification Frame, and the hope put into the realisation of the European education area.

All over Europe, in regard to the implementation of policies in these fields, there has not been a guiding solution developed about the question of validation of formal, non-formal and informal learning. This widely relates to the question of the character of the *independent and trusted body* conducting the validation and recognition.

In non- formal education, there are often providers and grassroots movements which experiment and partially mainstream micro-credentials, and develop ways also to use them as a *tool for bridging the logic and expectations of the distinct learning fields* of formal, non-formal and informal learning. Through micro-credentials, used in instruments such as individual learning accounts, there is a new potential to level the playing field between capacities gained in non-formal and formal learning, independent from the question of whether the learning recognition automatically leads to a degree. How and under what conditions this happens in the labour market and in higher education institutions is something education for democratic citizenship and human rights education needs to investigate and follow because it also embeds a chance to better match the provisions of non-formal learning with the learning

needs of the individuals and improve the peer-learning and codirecting aspects. Also, properly used, the technique may allow a learner-centred form of lifelong learning allowing for a much deeper and more holistic form of interconnected and integrated learning overarching the fields of formal, non-formal and informal learning while at the same time bridging between youth work, vocational education and training, school/university and other learning.

Technical value of a (micro)-credential

measurable	it represents specific, identifiable and measurable experience or skill;
secure	not falsifiable and verifiable;
personal	attributable to a single, identifiable person;
stackable	credentials of the same type can be added together to form a greater whole;
transferable	it can be converted into different credentials;
collectable	the person to whom it is issued can own, control and physically possess the credential;
standardised	standards ensure that the same set of conditions will always lead to the award of the same credential;
transparent	the value represented by the credential, as well as all processes that lead to its award are published;
recognisable	the credential is available in a language and format that allows for wide use and acceptance;
traceable	the conditions which led to the issue of the credential can be audited;
easy to use	third parties using the credential can do so easily;

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Micro-credentialling: Open Badges in Non-formal Education

By Mike Cotterell

Open (digital) badges is a standard to recognise and verify learning and achievements. They are digital micro-credentials that may represent identity, interests, competences and achievements across the web. A badge is a micro-credential confirming a person has conducted certain tasks, achievements, conducted certain works or participated in certain workshops. In a non-formal learning setting, one can break down the model of a seminar in badge-related activities. Participants can decide what activities they want to confirm in a badge, such that they can also steer their learning plan more actively.

The Open Badge system is used in university and adult learning and has made a strong impact in non-formal education (NFE) for several reasons, the main one being its flexibility. You can build and design any number of badges for an event or workshop, dealing with any aspect. Want to focus on the skills practiced? Content discussed? Both? Likewise, when used to highlight these elements of your workshop or event, they become a tool for reflection after the workshop. To remember the content of a session, or to have a concrete description of the skills or competences employed in that session is invaluable a year after that event finished.

Example of a digital badge

Receiving the badge is only the outcome though. The design and implementation of badges is an immensely creative endeavour. The design of the badge can be as simplistic, colourful, eye-catching or intensive as the organiser wishes. Titles of badges can be thematically linked to the workshop, to previous events, other projects or even other badges. For example, in a series of events that were part of a project dealing with civic education, discussions of pop culture and the influence on society, the titles of our badges were based on quotes from films, as a medium with a significant influence on pop culture.

Open Badges as Recognition

This ability to fill the space required makes Open Badges a great way to fill the niche of recognition in NFE, using an approach that Formal Education cannot incorporate. Primarily, since NFE does not certify, the experience of a participant is personal, not standardised, and Open Badges aid this in helping participants to reflect on the skills and content employed, rather than qualifying a specific threshold of achievement. In

many ways, this is exactly why something like Open Badges should be used in NFE. The purposes are neither structured nor categorised like a curriculum. There is no national or international body standardising content or method. Despite this, there is a wide variety of institutions who accept Open Badges as evidence of skill or content engagement, including some universities. This will not replace a CV, of course, but it is an excellent way to augment one's competences.

Origins

The Open Badge system was introduced by the Mozilla Foundation in 2011, driven by their open-source community approach. Like other open-source projects, the aim is to share and improve your ideas through collaboration and personal motivation. By using the product, you contribute. Of course, many people have different ideas about how to solve the intended problem, and so, between many thousands of users, there are hundreds, if not thousands, of Open Badge platforms. (Please visit openbadges.org for more information.)

Method of Checking the Evidence

The programme we use is by Badgecraft (badgecraft.eu), and it lets you set several options. Organisers can confirm the evidence. The user can confirm for themselves. Or, you can set a number of other participants as required to confirm the evidence for the participant to earn the badge. I usually set this at one or two, for two important reasons. Firstly, I want participants to actually earn the badges, and the more checks required, the harder this becomes. Secondly, those participants will see somebody else's submission for evidence. Every participant has a submission and will see at least one other submission. They get to see someone else's interpretation. Variety is the spice of life, after all.

This objectives- and achievements-based process and the form of peer review translate well from youth to adult education, in processes where the learner can take the lead and direct their learning while supporting colleagues in their assessment. Continuing to expose learners, young and old, to other opinions and perspectives is a key element of non-formal education. These processes make Open Badges a useful tool for adult educators to share responsibility and raise motivation between their students in this way.

Open Badges in Adult Learning

As I have outlined above, Open Badges are a tool that can be applied to any structure with which you wish to engage it. Therefore, the benefits of including them in adult learning

environments are virtually the same as other contexts. The downsides will depend on the organiser and participants. Creating badges for your event or workshop requires additional time, plus the "maintenance" of walking your participants through the steps of being able to engage with them. The more complex you make them, the more time you will need to dedicate to creation and maintenance. A potential problem that could be more prevalent in adult learning is dismissal of Open Badges. Contextualisation will be important. If your participants believe badges are a flimsy attempt to look like certificates or qualifications, and they understand it is optional, then they will refuse to engage with them. However, if you are clear that they are not tracking achievement, not meant to replace a qualification, but to help with reflection as a personal tool, to aid personal growth, you can pique interest in this alternative approach.

Conclusions for Educators

In the end, the optional nature of Open Badges is most important when considered by the organiser. If you can find some aspect of employing Open Badges that inspires you, whether the creative aspect, the engagement for participants, or the opportunity to reflect thematic links in your projects, you will be motivated to include them and make them the best tool available to your participants (and because this is NFE, you make some mistakes and learn better methods along the way). If the breadth of application, optional nature, or lack of quality-assurance are knock-down arguments for you, then you would do a disservice to your participants by forcing yourself to include them. Open Badges done well will only highlight what good elements are already present in your project. Done out of reluctance, they will draw time away from your planning and detract from the content you want participants to engage with. That's the great thing about Open Badges being optional. The choice is yours.

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Avenues for Self-assessment and Competence-based Professional Development: The Case of AppRaiser

By Snežana Bačlija Knoch

What lies ahead is an example of AppRaiser, a web-based 360° professional development appraisal service meant for trainers and education stakeholders. We say "trainers", but in reality, the platform is suitable for different profiles of facilitators of learning, working with young people and adults alike - especially if they are active internationally and facilitating learning of international groups of participants. AppRaiser is a digital platform that offers a concrete set of badges to facilitators of youth work and non-formal education. It was developed with the aim to support facilitators of learning in implementing a competence-based approach to their professional development and, by committing to it, also contributing to the quality of youth work and education in Europe. To strengthen this impact, AppRaiser has its own set of digital badges, which are issued when users unlock pre-set achievements. This is an ambitious aim, but also an ambitious group of people and organisations behind it. AppRaiser was carried out by the IYWT Guild, together with five equal partners: the Lithuanian association of non-formal education (Lina), Ha Moment Portugal, Associazione Interculturale NUR Italy, Coobra – cooperativa braccianti Austria and Badgecraft Ireland.

AppRaiser Essentials

PROFESSIONAL DEVELOPMENT

The story of AppRaiser started in 2016, among a group of trainers associated with the International Youth Work Trainers Guild (Guild of Trainers). While studying competence

areas of the "ETS Competence Model for Trainers", they imagined that in order to motivate trainers and other facilitators to commit to professional development based on this comprehensive model, a tool would come in handy. The decision was made to develop a digital tool that would be accessible, intuitive and inviting. In reality, the decision to go digital was as quick as this short sentence indicates. And for a good number of reasons. Even though the idea of AppRaiser came a few years before the COVID-19 pandemic, a lot of training activities already incorporated digital dimensions to some extent: by using a variety of digital tools during the residential activities; by implementing blended (now also known as "hybrid") learning to extend the learning process of international groups; or by developing courses that were taking place fully online (e.g. MOOCs). Therefore, when thinking about the tool that would support those processes and facilitators implementing them, it made sense to join the process of digital transformation. At the same time, professional development, even with the most dedicated practitioners, is mostly done in addition to everyday professional and personal tasks and obligations. Hence, having a digital tool, that would be easily accessible (including "on-the-go"); that would have all the steps of professional development in one place; that could include other stakeholders in the assessment process by using just a few clicks; that would store the outcomes of assessment on an ongoing basis; and that would be supported by a digital form of recognition (the badges) illuminated the only possible route - going digital. Based on these premises, AppRaiser was turned into an international project, supported by the Erasmus+ Youth in Action programme of the European Union. Now, almost four years afterwards, AppRaiser is fully up and running.

A Competence-based Approach

To develop AppRaiser around competence-based assessment came as a very natural approach to the team behind the platform. The competence-based approach see learning, and therefore professional development as well, as a lifelong and life-wide dynamic process, with open and multiplicitous learning paths. This vision of learning is also at the core of non-formal education. At the same time, if learning is approached more consciously and learners embrace a framework and structure for the development of their competences, the results can be more comprehensive.

   On the other hand, besides being enchanted by the colours and charts of the ETS competence model for trainers working at the international level, the choice for AppRaiser being developed based on that particular model was because the team felt that it brings the needed frame and language (albeit complex at times) that everyone involved in assessment can share, and in particular, facilitators of learning working at the international level, which are the target group of the model.

The ETS competence model for trainers was developed by SALTO Training & Cooperation Resource Centre and a number of international experts, and it currently defines seven competence areas:

- Understanding and facilitating individual and group learning processes
- Learning to learn
- Designing educational programmes
- Cooperating successfully in teams
- Communicating meaningfully with others
- Intercultural competence
- Being civically engaged

Under those seven competence areas, there are 39 competences and even more specific criteria covering knowledge, skills, attitudes and behaviours. The model is quite rich and quite complex, as it was meant to provide a framework to a very diverse and colourful field of international youth work training and to offer an overview of competences relevant for the field. It is not a qualification framework and it is not a prescribed checklist that every trainer must respond to. Instead, it brings a framework, a structure, an orientation into the field and it aims to support trainers in developing their competences further and on a larger scale to increase quality of training provided. As said in the description of the Model itself "[...] it is not meant to be a "must-have" list of competences that all trainers working in the European youth work field should possess to the same degree, but rather a possible series of training-related competences, optional support mechanisms, and elements for trainers to consider while developing training courses and training modules, or while undergoing further professional training." To add from the AppRaiser perspective, it is useful to consider when planning and implementing professional development pathways.

Complementary Important Pillars

Besides the ETS competence model, AppRaiser was based on several other approaches that became pillars of the platform. They were either part of the team's practice from before or were "discovered" through extensive research that preceded the launch of the project. In both cases, each of them had an important role to play in development and implementation of the platform.

360-degree assessment/feedback/review was chosen based on experience in the youth training field, which indicates that trainers often select those people that they would like to get the feedback from, which does not necessarily provide a realistic picture of their competences. Hence, there was a need to ensure coherence and a holistic approach with AppRaiser.

360 + 2 or taking 360-degree assessment an extra mile. One of the main pillars of the work of the Guild of Trainers is peer support that comes in the form of trios, which are formed yearly and whose purpose is to support collegial professional development. So, when thinking about the missing part of 360, which is how to process all the insights, charts and quotes that come from self-assessment and feedback, the team decided to go back to the trios and make them another essential pillar of AppRaiser. The trios are formed by three colleagues that have not worked together previously (or not very often, at least) and they are there to support each other in: going through the 360 process; processing results and outcomes of the 360 process by asking appreciative, deepening and clarifying questions and pointing out biases and critical judgments; planning further professional development steps; and in being there for each other, empathising and truly listening.

Design thinking was the main approach behind development of the tool. It is an innovation process, which puts people (users) and their needs at the centre of the creative process and makes sure that the team gets to know their potential users (in this case trainers), their habits and preferences, before starting the developments. In AppRaiser it was a non-linear process, managed through a well-planned design cycle: 1) observation and research; 2) ideation; 3) prototyping; and 4) building and implementation. And it was precisely the design-thinking approach that led the team to reach out to both the theory behind the different elements and to the continuous needs assessment (through surveys, interviews and testing) of AppRaiser.

Appreciative inquiry is a change management approach which is based on affirmation and recognises the best aspects in people, affirms past and present strengths, assets and potentials. Through the survey and interviews it was confirmed that the majority of trainers look at the things that they are not satisfied with and the AppRaiser team wanted to make a shift in this process. In practice, appreciative inquiry was not implemented fully, as it seemed that the development mindset clashed with the principles of affirmation and highlighting the strengths. This was confirmed by the trainers using the platform as well.

AppRaiser Elements

Through continuous consultations, the platform was built on the needs and practices of trainers in the youth field and it includes self-assessment; feedback from participants, colleagues and organisers; and professional development using the 360° review data and peer trainer support system. Each step of this process is accompanied by the guidelines that support users from a technical and quality perspective. Initially, the starting point was meant to be the self-assessment, but in reality, trainers (again through surveys, interviews and testing) indicated that they very often start their assessment path by collecting feedback. Regardless of the entry point chosen, it is

important to travel the 360-degree journey and then some more. Those +2 make all the world of difference and they are an essential step towards professional development.
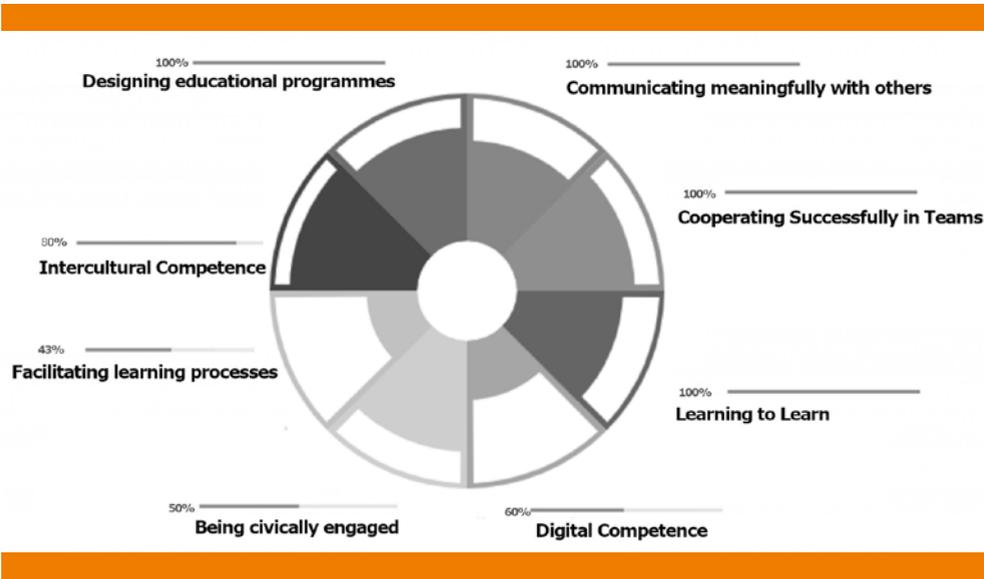
Here are the core AppRaiser elements (in no linear order):

rating one's profile as a trainer;
performing self-assessment based on one or more competence areas (including rating, providing reflection entries, uploading evidence); asking for feedback based on one or more competence areas, connected to training events and to a selected group of participants, peers and contractors;
receiving visual charts of self-assessment and feedback;
having trio support to process 360-degree outcomes and plan further professional development;
having tools and suggestions for further professional development;
having the possibility to share (parts of) 360 outcomes;
having guidelines (both technical and pedagogical) to support each of the elements.
having badges to recognise efforts and commitment to professional development and quality.

AppRaiser Badges

An element that requires special attention, as another important feature of AppRaiser, is the use of digital badges. There are currently 13 badges in AppRaiser, and they are used to recognise efforts invested and commitment to different elements and steps of the professional development process. In AppRaiser, trainers can have multiple types of assessment to earn a badge. Perhaps the most obvious one is by doing the actual assessment of indicators through a rating scale, but then there are possibilities to upload evidence, as well as to add reflection. The intention behind this is that the platform would further layer the diversity of ways in which assessment can be carried out and how commitment to quality can be shown.

Speaking about quality, Appraise badges are AppRaiser's tool for recognition, which follows the main principles on which the platform was built. Since AppRaiser was never intended for use by external stakeholders to assess and certify trainers' level of competence, the use of badges breaks out of the traditional hierarchy of formality and redistributes the power of assessment. As in other processes of micro-credentialing, users themselves are the ones that claim the badges, based on their own efforts invested.

Now, micro-credentials are connected to certifying a certain level of achievement or competence and they are usually being claimed by learners, based on

them completing the set requirements. In the case of AppRaiser, badges serve more as a tool for recognition. They do not certify the level of competence, but rather recognise commitment to professional development and efforts invested in it - through self-assessment of competences, gathering feedbac and planning their professional path. They are issued automatically rather than claimed by the user, meaning that AppRaiser has recognition embedded in it. Users can share their digital badges on social networks, trainer portfolios and other places that matter for them.

Badges purpose is, on one hand, to recognise the commitment to quality (through investing in professional self-development) and, on the other, to motivate the practitioner to continue (e.g., by completing self-assessment in more competence areas), to do more (e.g., by gathering feedback or by uploading evidence) or to come back (e.g., to revisit their self-assessment or to ask for feedback for the new training event). Used this way, the team behind AppRaiser felt that badges are truer to non-formal education, which is not about outputs and grades, but rather about lifelong learning and development.

Through this, AppRaiser would like to send the message that what is valued is not necessarily the level of competences, but rather investment in professional development and, as such, investment in increasing the quality of training delivery. The badges are not linked to a certain level of competence, which would imply a more finite process of competence development and one that cannot be reversed. AppRaiser adopted a more dynamic and fluid approach, acknowledging that there is no such a thing as completing professional development in a certain area. Seen from a systemic perspective, competences depend on the context, and once a trainer "plugs into" a different context, they need to "update" their competences, which often implies further professional development.

Why Not Opt for Certifying Competence Development?

In fact, this was the initial plan when the AppRaiser was born, and it was even developed as such in the project application. The application also included the public profile for each of the trainers on the platform, where they could show their competence levels to the outside world. However, this was one (and the only) aspect of the AppRaiser that was abandoned during its development, and this was done based mainly on the feedback from the users. One of the reasons was that the public profile could lead to trainers hesitating about being fully honest when doing the self-assessment and all the other steps on the platform. If it were to be public, with many users being freelance trainers, the fear was that they would rather use the badges for their self-promotion and/or the employers would see the badges as a useful tool for their recruitment approach.
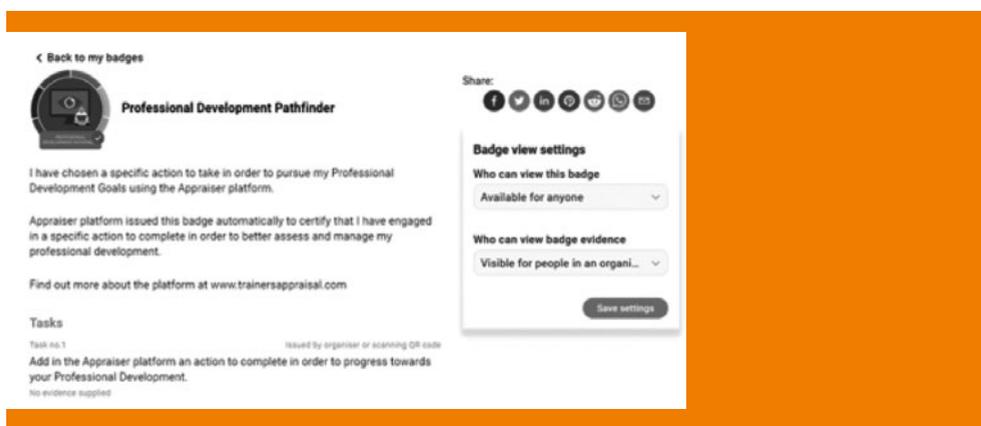
Another reason came from the AppRaiser team (trainers themselves), which felt that what could and perhaps should be more celebrated is commitment to quality and professional development, both by the trainers themselves and other relevant stakeholders. Hence, the badges can still be shared, but serve as a "proof" of this commitment. This different focus would hopefully lead to recognition of the role and of the profession, which could in turn lead to qualification frameworks starting to be developed in different countries. Perhaps then we would be ready to talk about micro-credentials and using badges to recognise different levels of competence.

Conclusion

AppRaiser was built as a competence-based assessment for professional development. Digital badges have been an integral part of the AppRaiser approach since its very beginning and their mission of contributing to recognition and quality of youth work and training activities in Europe remains clear. What is evident is that how they are modelled and used to reach this mission has changed throughout the platform's development. At the moment, they are there to motivate the users to continue and keep coming back to their 360-degree assessment process, as well as to testify about their commitment to professional development and quality of delivery. But they could also be remodelled to certify levels of competence and milestones of users' professional development. AppRaiser continues to be a dynamic platform and it will keep adjusting to the circumstances around trainers working at the international level. One example of that is adding the digital competence area to the platform when COVID-19 sped up the digital transformation and development of training and other educational activities. Therefore, AppRaiser aims to continue to respond to the needs of the field (and beyond), taking digital badges with it on this path.

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8. Outlook and Resume for Education and Learning

"Freedom from discrimination, opportunities to participate, anonymity and freedom of opinion for everything and everyone were the great promises that were to be realised on the Internet. Omnipresence of large corporations, fake news, hate speech campaigns or surveillance scandals reject these promises. Political education can reinvent itself by working out emancipatory potentials of digitalisation and supporting people in their explorations of the digital" (basa, 2020).

Digital transformation is a process which, for over a quarter of a century, has vitally changed lived realities within our societies across the world. The transformation is not a challenge ahead of adult learning, but is a reality in which adult learning is already deeply embedded, actively and passively. EDC/HRE approaches, specifically in adult learning, face several challenges when tackling digitalisation, related to a shift in content, learning environments, context and learning institutions, and as a decisive shift in the dimension of educators and learners involved (or not) as learners, adults, citizens, and identities:

Content is Changing

In the context of digitalisation, developments in the field of algorithmic processing of information and artificial intelligence have become increasingly important.

They require on a societal level a new kind of digital literacy, understanding the economic and social presumptions of digitalisation. For instance, machine learning using artificial neural networks plays an increasingly important role. We gather more information, and have tools to reach new conclusions that we were previously not able to. Also, the other brochures in this series illuminate specific aspects which are reflected in the topic of digital transformation. They all require education to look not only at the technology as such, but also focus on the processes and interests behind its

implementation. With these new processes, changes in society and added information, much of the content that we bring now to education is new, not just comparing with previous generations, but within this decade - a fast change that is expected to continue, at least in the near future. "The associated media appearances and the processes taking place behind them, as well as the progressive demarcation between man and machine, raise various questions e.g. about the image of man and suitable target perspectives to be taken as a basis in the future, about important forms of use and fields of action, as well as about significant content areas and approaches" (Tulodziecki, 2020).

The Environment and the Conditions of Learning are Changing

The processes, logics, infrastructures and environment of adult learning are already undergoing vital changes because of datafication of infrastructures, of learning processes and of new available tools and materials. Challenges arriving from the digital transformation form one more dimension of these transformative processes. Given the diversity of learners and the intergenerational scope of adult education (alongside a shift of concepts of youth and adulthood, of employment and technology), the ways in which learning is happening, include a broader set of skills and abilities. It goes beyond cognitive knowledge and thinking, shifting educational curricula, involving learners in collaborative processes, participatory research and learner-led projects, learning from experimenting, achievements and failure. This process requires frequent updates: regards the educational aspects in its specific programmes, contents and methodologies, as well as in regard to changes in institutional structures.

Like in other parts of the society where services and provisions are being digitally reshaped, strategists of machine learning are also forcing development in education, which distances learning itself from

anthropocentrism. A vision where humans are not necessary put at the centre, but rather the intention is to see people and machines alongside them. This might have both positive and negative aspects. Certainly, it comes alongside the need to raise awareness for similar contemporary developments that question a human-centred success story: the ecocide and the negative human imprint of the Anthropocene era to name firther examples. In the Anthropocene era, human activity irrevocably shaped the face of their ecology. Does technical progress, then, envision a next step in a climax of progress - adding an irrevocable technical layer to this natural environment? "The distinction between human and technology, human and non-human areas becomes more permeable. In society, decisions are happening more and more in 'algorithm cultures'. The creation of identity and individuality in the life-world is increasingly based on data-based technologies" (BMFSFJ, 2020, p. 293).

Digitalisation is Changing Learning in Terms of its Inherent Logic

There are new debates on rights, autonomy and privacy dimensions because of the new ways to look at data. But there are also new ways to support learners as individuals through that same data that are in discussion. Resource-orientation of learners becomes a much more dominant aspect of learning, offering a potential for a cross-sectoral and overarching learner-directed vision of lifelong learning.

   "Learning becomes transversal, which refers to the intertwining, crossing of different codes and their networking, on double coding, complexity, hybrid formation, flowing transitions and border crossings. Transversal learning means a general thinking and form of design, the ability to take an interdisciplinary approach, cross-cutting thinking, where both multi-optional, poly-contextural, transmedial and holistic as well as structurally networked thinking is encouraged" (Röll, 2020).

Learning in digital transformation thus reinvents the classical holistic autonomy- and attitude-related concept of holistic learning, as understood in the term "Bildung". It builds on the ability to create innovative solutions, while going beyond to trust addressing issues for which there are no solutions. As such, "curiosity becomes the most sensitive, important and decisive competence enabling the ability to bring disparate information together. Curiosity, accompanied by a set of transversal competences that support a learner navigating the new uncertainty and becoming a self-directed learner able to meaningfully integrate new challenges to come. Playing with possibilities, the irritation to endure and become creative, imagining possible outcomes are competences that support navigating this ambiguity with confidence" (Röll, 2020). These competences are directing to the "transformative competences" as described by the OECD.

   Education in a post-digital world does not require increased knowledge, but rather an increased tolerance toward ambiguity and open-ended processes. Social perception,

understanding, anticipation, persuasion, teamwork, negotiation skills, creativity and social resonance are resources with increased importance.

Ideas of subsequent capacity development, as mirrored also in classical concepts of "literacy" of digital learners and in digital competence frameworks, can be helpful tools to understand and structure learning and capacity development for digital transformation. However one could also argue that their foundation still is based on a model of a canonical understanding (and acquisition) of competences, which as a model is probably not adequate for a post-digital reality.

The Learners are Changing

Are our assumptions about the learners valid? Are learners only citizens with digital skills gaps? Or is the mix of analogue and digital realities just a new "new", which also creates a new condition for defining skills and needs? EDC and adult education should not fool the learners: peoples' living conditions, the work and labour situation, and the social situation at large is already a result of the 24/7 impact of digital instruments and influences impact. The digital-analogue reality forms a large part of daily habits and necessities, and it is, for a large part of society, consciously or unconsciously permeable and permanently globally networked. It affects (and demands) their lives as people, as individuals, as learners and as citizens (and non-citizens), and does not happen in a separate sphere of being, which can be turned on and off. In these rapidly changing environments of work, social life and citizenship, there is a greater amount of responsibility for the learner. They gain responsibility to recognise and identify knowledge and skills relevant for learning. A significantly bigger responsibility than it functions in a traditional setting of skills and qualification forecast, since learning and skills become more adaptive and more fluid. Soundly supported technologies and tools help learners evolve into this role as active learning agents.

The Profile of Educators is Changing

Digital transformation is not only about technologies. A big part of it is about the transformation of mindsets of those involved and the changes in organisational culture. If education for democratic citizenship/human rights education (EDC/HRE) wants to mirror this transformation affecting all spheres of the world as we know it, this transformation affects the role of the educators, who step more into the role of facilitators of self- directed processes.

This reinforces the educator's role as a learner. Digital transformation is an opportunity for every one to become a curious lifelong learner. Educators in transformative situations require these forms of transversal learning as one more tool for competence

development that is transferrable to many areas of education and life.

As a consequence of this shift, the relationship between learners and those accompanying and providing guidance to the learning processes might undergo a change toward a cooperative, networked learning. Now all people involved in a learning setting, including non-human sources, can be „accessed" at any time in proactive form. Networking takes place via nodes and connections. "The node is seen as the central metaphor for learning. A node can be the learning person or other people, but also sources such as internet sites, graphics and books. Learning is seen as a process and means creating new connections to other nodes and thus building a learning network" (Roell, 2020).

The Institutions of Learning and Education are Changing

Change relates to the full range of aspects covered: to their self-defined role in accessing and opening learning in an environment or societal reality, of being part of networks and intuitive, socially embedded, ubiquitous transmission of learning content. Increasingly it will be the significance learners attribute to those institutions that predefines their role for learning, rather than a given structure or field responsibility.

Classical institutions following a linear and hierarchical idea model of teaching and learning and institutions with an inherent structural inertia will most probably face the biggest challenges in adapting or transforming. In comparison to schools and universities, non-formal environments might be inherently in a condition to integrate this change easier, since their pedagogics and approaches are more easily adaptable to changing immersive realities. For example, they are more likely to adapt to learners needs or do not have to follow specific curricula. However, it would be misleading to say that the non-formal learning field will undergo the transformation more smoothly if the process is not actively aimed and desired. There should be no illusion: what can be datafied, will be datafied – for instance in administrative processes, in assessment of learning, implementation of education formats or for the recognition of outcomes.

In speaking with Benjamin Jörissen, it was clear that the institutional change needs to go into developing deliberative spaces: spaces that put individual filters over sources and content, spaces that network without defined boundaries, that work in asynchronous and polychronic structures as well as integrating hybrid spaces, ubiquity and mobility (Jörissen, 2014). The concept of "Thirdspace" to a certain extent fits this understanding: It refers to the necessity to generate and negotiate new hybrid learning environments and learning spaces, hybrid understood here in physical and virtual dimensions.

How can the perspective of EDC/HRE on digital transformation be mirrored in several dimensions? EDC itself takes place in an intertwined analogue and digital reality, so it should be investigated in regard to their impact and conditions:

- The instruments which are used by education and learners – materials, sources, platforms, or tools and spaces/places of learning
- How they are embedded in our societal and individual realities and influence our identities
- How these realities and identities are co-creating our assumptions about learning
- The networks as a new imperative of functioning of our globalised societies, including their subsystems and inherent power dynamics
- The differences and dualisms between the analogue and the digital (in institutions, as learners, as educators, owner and creartor of content, etc.)

A guiding perspective for understanding the different responsibilities we face in education and learning of democratic citizenship, should be envisaging the dimensions of *rights* affected, *openness* of instruments and platforms we use in our concrete educational work, *access*, as well as the dimension of *multi-stakeholder participation* in our simultaneously digitalised and analogue learning and living realities. In adult and youth education, these dimensions count for the learners, the relation between learner and educator, the content of learning, the institutions, the institutional environments and their inherent regimes, the co-governance, and ownership of learning processes.

These are surprisingly analogue questions, relating the new "new". They tackle well-known cross-cutting aspects, which are also topics in many EDC/HRE programmes, in a lifelong learning context and in those with a special focus on children and youth. This includes, for example, environment, rights and values such as diversity, inclusion, equality or freedom, individual and group participation, governance, or economic issues.

EDC/HRE should actively confront itself also with digital divides, which are becoming visible through raising questions about it. It should also be aware that from a networked perspective, it might find itself among those reproducing these divides globally.

It is not about changing the lane but accepting and co-directing the new analogue-digital premises. Under this perspective it is becoming evident, that EDC/HRE in and for digital transformation goes beyond visions about utopic or dystopic futures offered, and also, vitally, beyond media pedagogy, media education and the sole acquisition of media competence. Its focus need to be the immersive and permeable conditions, intertwining the digital and the analogue dimensions which are both structuring and generating our societal realities already today.

This does not mean to accept the conditions and processes as irreversible and indisputable. On the contrary, there is an eminent need to actively advocate.

For an EDC/HRE, which actively supports citizens in their emancipation through exploring and conducting self-directed, self-efficacious educational processes and questions mercantilist education (or surveillance-driven) principles in place.

For safety and privacy in emerging open source software and tools against a digitalisation which does not serve the learners but the IT sector (as the unreflected leap into the ready-made learning platforms since COVID-19 unfortunately also confirms for the non-formal education sector)

For an understanding of learning beyond the enabling of learners to solve individual and isolated difficulties. It should promote learning that provides comprehensive qualifications for "coping with existence" in a digitalised and permanently changing world of life and work.

Will everyone be a researcher, an educator, a learner? What do we expect from our learners? How does adult education adapt to better support more curious and self-directed learners?

How do we, on a systemic level, advocate for the shift towards active citizenship? Will post-digital education help learners to overcome invisible boundaries of status, privilege and hierarchy, which are prevalent characteristics of our societies? Will it change what society accepts as learning and education?

Is EDC/HRE addressing these personal and societal challenges? Which other stakeholders are looking at these implications of the digital transformation in education and, more specifically, adult learning?

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