

# Conceptions of digital competence from the perspective of democracy-related (civic) education

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## Post-Digital Perspectives on Digital Competence

Education must respond to new societal situations and needs in order to help its learners cope with and shape these transformations. In general, a consensus is emerging in society that digitalisation is a comprehensive societal transformation that has diffused into the different spheres of social life and is transforming their perspectives, ways of working and structures. It is equally undeniable that digital education should embrace digital transformation and a similar mandate arises for civic education. But, speaking of transformation, where are we right now?

Martin Seemann suggests that digital transformation should be understood as a five-phase process (Seemann, 2019). Early "network utopias" up to 1995 were followed by a phase of "remediation" with the advent of genuine new media (1995-2005). Now came a phase that can be described as a loss of control, on the one hand of authorities over data and digital space, on the other hand of people over their digital selves, until ca 2015. "The new game" describes the incipient platformisation and re-sorting of the previously rather anarchically described digital space. (2005-2015). At present, we have gradually entered a phase of restructuring.

Others explain the technical development. A phase of digitisation of analogue practices was followed by the networking of various services and devices. This means that more devices are appearing alongside stationary computers in professional life and everyday life. Networking and interconnection of these devices in combination with datafication of the processes themselves have finally made new forms and business models possible – which we speak of today as platformisation, Big Data or applied AI.

Depending on the perspective of the speakers, the diagnosis is surveillance capitalism (Zuboff), data colonialism, Industry 4.0 (governments or business associations), technology that works for the people (EU Digital Agenda). There is thus agreement on the description of the rough development, not on the details and the conclusions we have to draw as a society. At the same time, this gives civic and democracy-related education a lot of material that it can and must make accessible and negotiable for citizens.

However, the last few years have also shown that we are not dealing with an abrupt new development, that the digital sphere would be "uncharted territory" (Neuland), as the German Chancellor put it in 2013, a view that was still very common at the time. At the latest with the "analogue" restrictions associated with the global COVID-19 pandemic, it has become clear to everyone that digital and analogue spheres are intertwined, that digitalisation has long been helping to shape our everyday lives and our economic life. To

speak with cultural theorists - we have long lived in a “new” society and can now better understand what their early theorists like Manuel Castells (network society), Nicholas Negroponte (“like air and drinking water, being digital will be noticed only by its absence, not its presence”) or Marc Weiser (describing the vision of ubiquitous computing) were getting at.

Post-digitality understands digitalisation primarily as an evolutionary cultural process, less as a technical one. This view emphasises more on how relations between digital and non-digital practices are created, as well as on the evolutionary character.

In this sense, the question is how notions of digital literacy can respond to these developments and insights. Especially since it is a social and cultural process, how civic and cultural education can contribute to the teaching of relevant digital literacy. In consequence, in digitalisation debates and educational reforms at the national level, transnational (OECD, UNESCO) or European (DigComp 2.2, Digital Citizenship Education), digital competence is increasingly viewed as integral or as part of transformative competences, those competences “that students need in order to contribute to our world and shape a better future” (OECD, 2019).

In educational practice, too, it is assigned a high practical relevance, despite all of the existing criticism of competence models. Overall, there is a trend toward a more holistic and reflective understanding of digital competence that goes beyond the mere ability to use technology or to handle it safely and professionally. A trend diffusing especially from the field of youth-related media pedagogy into lifelong learning. Parallels to the development of the notion of media literacy come to mind here. In Germany, Dieter Baacke expanded the ideas and integrated media criticism, media studies, media use and media design. Especially in the field of youth education, approaches and methodologies emerged in this sense that conveyed media education holistically, actively and empowering social and action and cultural expression, as well as always being able to pick up on connections to new media, trends in youth culture and media developments (Feldbusch, 2011, p. 426).

Thus, in analogy to media education, a digital pedagogy of civic education must focus on the “concepts behind the 'media interface'” (Tulodziecki, 2020), i.e. platformisation, algorithmisation, datafication and their social, cultural, economic and technical foundations. In relation to the transformative character of the digital transformation, a “pedagogy of navigation” called for by Röhl and others is developing (Röhl 2003), as well as educational concepts that conceive of the digital self of the learner as a subject - integrated in a variety of digital and non-digital and dynamically changing relationships (Jörissen 2017). The relationship of the subjects to the transformation must come into focus and their ability to help shape the transformation: The “guiding idea of the socially capable subject [should] not be understood as a closed universalistic concept, but as an open design that makes it necessary to come to an understanding about the desirable relationship between man and machine in discourse and to shape this in a humanistic way - despite all indeterminacy and uncertainty and all economic resistance” (Tulodziecki, 2020, p. 45).

Digital notions of competence thereby gradually accomplish what can be called a step from user education to the recognition of learners as *producers* - who not only consume or use, but also share, co-create or change debates, data and content (Bruns 2008). With regard to the problems associated with digitalisation, however, this also means focusing more consciously on dealing with content, with data and with the effect of produsage on the self and others, without falling back into a pedagogy of prevention.

In addition, a post-digital perspective suggests that citizens should not be seen as victims of digitalisation who “need to be prepared”, but rather as people who have already acquired competences and experience with digitality. Funding concepts and educational priorities also need to change here, especially overcoming the attitude that older people do not understand a lot about new technology - but perhaps about transformations?

When one finds oneself in midst of a transformation, reflective competence and systemic understanding help, because both support learners, in the language of “education as navigation”, to determine the

current position. Building on this, complexity becomes observable and learnable. Civic education in particular has experience in communicating or facilitating complex socio-political issues, which it can now transfer to the tangle of issues of digitalisation, which is perceived by many as “too complex”, even within the profession.

## European Development: The Example of the DigComp Framework

The European digital competence framework *DigComp* has been regularly expanded since 2013 and, although education is a matter for the EU member states, serves as a template for many national curricula and educational concepts. In this sense, one can ask to what extent a modern understanding of media education oriented towards democracy, participation and active citizenship is reflected in it.

The first DigComp version (Punie, Brecko et al. 2013) offers an ambivalent picture. On the one hand, the description of the competence areas reflects a broad understanding of digital competence that includes the following areas:

- *Information*: identify, locate, retrieve, store, organise and analyse digital information, judging its relevance and purpose.
- *Communication*: communicate in digital environments, share resources through online tools, link with others and collaborate through digital tools, interact with and participate in communities and networks, cross-cultural awareness.
- *Content-creation*: Create and edit new content (from word processing to images and video); integrate and re-elaborate previous knowledge and content; produce creative expressions, media outputs and programming; deal with and apply intellectual property rights and licences.
- *Safety*: personal protection, data protection, digital identity protection, security measures, safe and sustainable use.
- *Problem-solving*: identify digital needs and resources, make informed decisions on most appropriate digital tools according to the purpose or need, solve conceptual problems through digital means, creatively use technologies, solve technical problems, update own and other's competence.

On the other hand, the framework was written primarily for users. Democracy or rights are not explicit, except as "intellectual property rights and licences" to be respected.

Three years later, *DigComp 2.0* was published (Vuorikari, Punie et al., 2016). The concept took up impulses from digital pedagogy and digital education policy with some changes:

- *Information and data literacy* – extends the object of browsing, searching, filtering, evaluating and managing from mere information also on data and digital content
- *Communication and collaboration*. 2.3 Engaging in online citizenship becomes now: 2.3 Engaging in citizenship through digital technologies – recognizing citizenship as a field where online and offline merge. *Participatory* citizenship is binding participation to certain democratic principles (but not to *democratic* citizenship).
- *Digital* content creation.
- *Safety*: 4.2 Protecting personal data *and privacy*- addresses the need to understand privacy better, how and by whom it can be violated. 4.3 Protecting health *and well-being* – puts emphasis on the active role of learners for the wellbeing of others: “To be able to protect oneself and others from possible dangers in digital environments (e.g. cyber bullying). To be aware of digital technologies for social well-being and social inclusion.” 4.4 Protecting the environment: clarification that not only the ICT technology but also their usage (by producers) has an environmental impact.
- *Problem solving*: 5.4 Identifying digital competence gaps. “To seek opportunities for self-development and to keep up-to-date with the digital evolution” refers to a more holistic understanding of the digitalisation than as new technical developments.

*DigComp 2.1* (Carretero, Vuorikari & Punie, 2017) was the more comprehensive revision based on *DigComp 2.0*, published by the Joint Research Centre in 2017. With eight instead of four competence level descriptions and examples, *DigComp 2.1* became more applicable and realistic - as a tool or inspiration for formal and non-formal digital pedagogy.

However, from a rights perspective more differentiated proficiency levels are also a challenge: For instance, is rights assessment a competence that should be facilitated for advanced learners or should education also address it in trainings for learners on foundational levels?

- “I can assess whether the way my personal data are used on the digital platform is appropriate and acceptable as regards my rights and privacy.” (p. 37)
- Now the frame includes also the European Data Protection Law and Right and as such linking the digital competence with the correct policy field – the European level.

*DigComp 2.2* (Vuorikari, Kluzer & Punie, 2022) is the current version. It essentially contains many new examples and illustrations of application scenarios. This does not change the competence model itself, but makes it clear how it is meant, respectively how it can integrate new developments.

Major new developments identified and compiled in a community of practice were the inclusion of:

- Misinformation and disinformation; Artificial Intelligence (AI); remote working, data-related skills and datafication of digital services; emerging technologies such as virtual reality, social robotics, Internet of things, green ICT skills;
- Aspects of the data economy and of “various dimensions of data literacy”
- In addition, an appendix has been created that deals with the large field of social datafication “Citizens interacting with AI systems” as well as with “Remote Working Examples”.

The examples and descriptions in the current *DigComp 2.2* reflect the societal debate that increasingly asks about the governance and guard rails of digital technology used on a large scale and the large influential players in the digital space.

While in the first versions terms like “democracy” or “rights” did not appear or only referred to “privacy” and “copyrights”, this is now happening more frequently, also against the background that globally very different paths of digitalisation have emerged, differing mainly in their assessment of the role of citizens and their rights, and against the background that Europe with its digital agenda wants to embark on a more rights- and human-centered digitalisation path. Here are some examples:

- Values tools designed to protect search privacy and other rights of users (e.g. browsers such as DuckDuckGo) (Example 13)
- Weighs the benefits and disadvantages of using AI-driven search engines (e.g. while they might help users find the desired information, they may compromise privacy and personal data, or subject the user to commercial interests) (E14)
- Aware of civil society platforms on the internet that offer opportunities for citizens to participate in actions targeting global developments to reach sustainability goals on local, regional, national, European and international level. (E72)
- Aware of the role of traditional (e.g. newspapers, television) and new forms of media (e.g. social media, the internet) in democratic societies (E73)
- Considers responsible and constructive attitudes on the internet as they are the foundation for human rights. Together with values such as respect for human dignity, freedom, democracy and equality (E80)
- Proactive about using the internet and digital technologies to seek opportunities for constructive participation in democratic decision-making and civic activities (e.g. by participating in consultations organised by municipality, policy-makers, NGOs; signing a petition using a digital platform). (E81)

- Knows that in the EU, one has the right to ask a website’s or search engine’s administrators to access personal data held about you (right of access), to update or correct them (right of rectification), or remove them (right of erasure, also known as the Right To Be Forgotten) (E106)
- Able to conduct an individual or family name search in order to inspect one’s own digital footprint in online environments (e.g. to detect any potentially troubling posts or images, to exercise one’s legal rights). (E110)
- Knows how to use tools and applications (e.g. add-ons, plug-ins, extensions) to enhance digital accessibility of digital content (e.g. adding captions in video players to a recorded presentation) (E132)
- Knows that the processing of personal data is subject to local regulations such as the EU’s General Data Protection Regulation (GDPR) (e.g. voice interactions with a virtual assistant are personal data in terms of the GDPR and can expose users to certain data protection, privacy and security risks). (E182)
- Considers the ethical consequences of AI systems throughout their life-cycle: they include both the environmental impact (environmental consequences of the production of digital devices and services) and societal impact, e.g. platformisation of work and algorithmic management that may repress workers’ privacy or rights; the use of low-cost labour for labelling images to train AI systems. (E216)
- Knows that all EU citizens have the right to not be subject to fully automated decision-making (e.g. if an automatic system refuses a credit application, the customer has the right to ask for the decision to be reviewed by a person). (E AI 64)

Furthermore, it supports the strengthening of the open internet: open data, open platforms, Creative Commons licenses.

## The Council of Europe’s Digital Citizenship Education Approach

With foundations in the Council of Europe’s Competences for a Democratic Culture, Digital Citizenship is extending digital competence further on the domain of Education for Democratic Citizenship/Human Rights Education. Digital citizenship includes engagement with digital technologies, participation through and lifelong learning with digital technology under democratic premises.

Digital citizenship education is understood as “the empowerment of learners of all ages through education or the acquisition of competences for learning and active participation in digital society to exercise and defend their democratic rights and responsibilities online, and to promote and protect human rights, democracy and the rule of law in cyberspace” (CoE, 2019, p. 9).

### Digital Citizenship Education

Being Online	Wellbeing Online	Rights Online
Access and Inclusion Learning and Creativity Media and Information Literacy	Ethics and Empathy Health and Wellbeing ePresence and Communications	Active Participation Rights and Responsibilities Privacy and Security Consumer Awareness

Council of Europe, 2022

Although being developed for the education of Youth, lifelong democracy- and citizenship-related education and learning might gain by considering the Competences for Democratic Culture and the Digital Citizenship Education concept. The authors hint also on nine transversal “guiding principles” which are also give importance to the specific conditions of democratic citizenship education:

## Guiding Principles

Informational	Contextual	Organisational
Knowledge of rights and responsibilities Reliable information sources Participation skills	Access to digital technology Basic functional and digital literacy skills Secure technical infrastructure	Flexible thinking and problem solving Communication, Citizenship opportunity

Council of Europe, 2022

Unlike many others, this concept places special emphasis on rights and ethical considerations. Firstly, because the approach originates from the Council of Europe, where *rights-based civic education* is not understood as preventive but constructive, as the basis for democratic participation: Those who know their rights can actively participate, backed by rights and standing up for their rights in the digital sphere.

The digital transformation in particular shows that digitalisation affects all rights, contrary to the assumption that it is primarily about data protection, privacy and copyright. Immanent in this is the question of how the digital space is structured and regulated along fundamental democratic principles and rights in their entirety. Digital citizenship education thus points to an often empty space in approaches to digital skills education and at the same time to a great potential of civic education in non-formal and lifelong learning contexts.

## Upcoming Topics in the Transformation

The examples from Europe and from the practice in the fields are images of the social ideas of their time and show us a certain direction.

Civic education has a long experience and a wide range of approaches to make socio-political complexity learnable. It manages, for example, to make climate change a topic, to talk about its (reciprocal) effects in different areas of society and world regions, and to deal with economic or political strategies for action without expecting its learners to learn about and construct a car motor or a coal-fired power plant. Transferred to the digital transformation, this can mean that platformisation, data-economic literacy, datafication and the impact of algorithms and AI can be appropriately didacticised, which does not place the technical teaching in the foreground.

Not that in-depth technical knowledge, coding or hacking is useless, but it is only one building block in the development of a holistic 'learning the digital'. Knowledge can also be expanded through more cooperation, for example with the actors of digital civil society. However, it is necessary to approach them, as many organisations in this field have less experience in cooperating with civic education.

Digital education becomes reflexive when it conveys the internet as a heterogeneous, changeable and changing ecosystem populated by different actors and interests. Approaches to this can be:

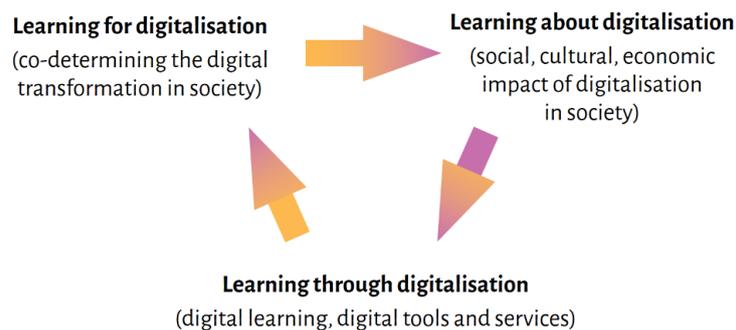
- Platformisation as an overall process and meta-trend shaping work, social life, global interaction and economy
- The digital self: co-creation of the digital identity by users and services under the conditions of ubiquitous computing.
- Facilitating understanding of the technical concepts of Big Data, Artificial Intelligence, datafication to non-professionals, including issues related to ethical approaches in their design and governance
- Data-Economic and network-cultural knowledge, how different visions of the internet coexist and interact, what drives them, how they work.
- Integrating global and environmental interdependencies in digitalisation-related education (linked to Global Learning, Global Citizenship Education or Education for Sustainable Development)
- Understanding impact of technology options on participation and inclusion

## For, About, Through Digitalisation

In analogy to concepts of human rights education, a democracy-related pedagogy of the digital can be oriented towards the various goals of

- 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, digital tools and services.

Acknowledging that all three are equally important, this could serve to check whether all levels holistically come together in trends in the profession and in education policy. As a lot of attention and money is currently focused on the last area (digitally supported learning) this might be an original task of civic education.



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