DIGITAL CITIZENSHIP EDUCATION

WORKING CONFERENCE

"Empowering digital citizens"

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Part 1
Setting the Context

Supporting children and young people to participate safely, effectively, critically and responsibly in a world filled with social media and digital technologies is a priority for educators the world over. The notion of digital citizenship has evolved to encompass a range of competences, attributes and behaviours that harness the benefits and opportunities the online world affords while building resilience to potential harms. The purpose of this paper is to set out some of the underlying assumptions, guiding principles and implications for educators and other stakeholders in assessing the scope of the emerging field of digital citizenship education. The paper is presented in two parts: Part 1 focuses on the background context and rationale for digital citizenship education as a policy priority and a consideration of its possible definition and scope; while Part 2 outlines some indicative actions, areas of responsibility and policy implications for the educational sector in implementing programmes of digital citizenship education. Finally, a brief description of the ten digital domains for digital citizenship education is contained in Appendix 1.

Background and rationale

Young people today inhabit a world that has been transformed by digital technologies, effortlessly enabling connectedness through social media and access to vast quantities of information. Making sense of this hyper rich information and engaging effectively and responsibly poses a whole set of new challenges for educators as they seek to prepare young people as citizens, exercising their rights and participating effectively in the affairs of the community.

Digital Citizenship refers to the ability to engage positively, critically and competently in this digital environment, drawing on the skills of effective communication and creation, to practice forms of social participation that are respectful of human rights and dignity through the responsible use of technology. The Council of Europe's Competences for Democratic Culture (Council of Europe, 2016a) provides the starting point for this approach to digital citizenship, noting that the competences which citizens need to acquire if they are to participate effectively in a culture of democracy are not acquired automatically but instead need to be learned and practised (Council of Europe, 2008). As such, education has a vital role to play in preparing young people to live as active citizens and helping them acquire the skills and competences needed.

The notion of competence employed here is one that goes beyond basic skills and refers to the 'ability to mobilise and deploy relevant values, attitudes, skills, knowledge and/or understanding' in the context of democratic society (Council of Europe, 2016a, p.23). Such contexts are not restricted to the physical world. The digital world now constitutes an environment fundamental to democratic processes that include the dissemination and mediation of information online, the platform by which intercultural dialogue is enabled and the context in which citizens increasingly exercise their rights to participate socially, economically and politically. For this reason, the model for competences for democratic culture has relevance not only to education for democratic citizenship, human rights education and intercultural education but also to digital citizenship education.

Being able to participate fully and effectively as digital citizens is not just about acquiring the appropriate skills or competences, however. It is, as recognised in the Council of Europe's Strategy for the Rights of the Child (2016-2021) (Council of Europe, 2016b), a matter of fundamental rights in the digital age. The pervasive use of ICTs by young people has rendered the separation of online and offline life increasingly meaningless, requiring urgent attention to Protection, Provision and Participation rights in the digital domain (the three P's as set out in the UN Convention of the Rights of the Child). In this context, the Council of Europe has advocated that Member States update legislation and policy to protect children in the digital environment, take action to empower children to make use of the full potential of ICT and provide education on digital citizenship and address radicalisation and hate speech.

The Challenges

Citizenship in crisis

In the last few decades, with the victory of liberal democracies and market capitalism over other forms of political and economic models and the prevalence of neo-liberalism, there has been a growing concern that citizens have been reduced to their role of consumers and discouraged from political participation (Svensson, 2011). Lower voter turnout in elections and a dwindling trust in politics are among the signals of a deeper crisis of citizenship, which extends into the digital world.

But the shift from citizens to consumers is only one of the many factors of a citizenship in crisis. Dahlgren (2007), for instance, identifies the dispersion of unifying cultural frameworks and individualization as key processes in late modernity. Similarly, Moro (2016) identifies migration, porous borders and the loss of the state's power in favour of international and supranational entities as factors in the changing nature of citizenship and forms of belonging.

Digital citizenship faces many analogous or related strains by design, given the decentralized nature of the Internet and its inner contradictions which manifest themselves in many ways including the tension between the potential for increased political participation and realisation of human rights versus the growing concentration of power in the hands of private players and the abuse from States in the form of censorship and surveillance.

Human rights

Digital citizenship, in order to be coherently defined, has to be grounded in universal/global principles applicable to all humans regardless of their diversity (origin, sex, race, religion…) to reflect the reality of the Internet. Human rights are perfectly suited for that task. However, as the sovereign power of Nation States erodes, it becomes unclear who will be in charge of enforcing human rights, especially in the online environment.

At the same time, such universalism goes against the formation of membership, sense of belonging and emergence of spontaneous forms of digital citizenship practices online. As Svensson (2011) notes, "defining community around boundaries of interest and meaning-making […] makes more sense in a reflexive and late modern society with digital communication that in many cases transcends state territory and unites users around cultural interests, lifestyles and tastes. […] These shared values, norms and ideas then constitute the core of the political community, out of which authority is constituted and claimed. Adherence to, and socialisation into, community values then becomes important for determining relations and power mechanisms within a community." (Svensson, 2011)

In this light, integrating human rights in the curriculum makes sense in order to ensure that spontaneous forms of digital citizenship emerging in online communities are grounded in and compatible with human rights.

Historically and contextually defined (digital) citizenship

Defining citizenship and by extension, digital citizenship, has always been a challenge in itself. It is grounded in the historical evolution of citizenship, which has taken two main forms: the republican form (inherited from the Athenians) and the liberal form (inherited from the Romans). The republican form insisted on the necessity of participation of citizens in politics, which has been criticized as being despotic as it forced citizens to dedicate virtually all their time to public affairs, linking freedom to civic participation; the liberal form takes the shape of a legal status of citizenship where the individual remains free to pursue his/her own personal good all the while being subject to the rule of law which has been criticized for relying on a just constitutional regime which, without citizen participation, could not be guaranteed.

From those two main historical definitions, a variety of different conceptions of citizenship emerged along with different views as to "what the criteria of membership should be; the nature of the political and legal institutions to which a citizen belongs; the content of their rights and duties; and the character of the norms and attitudes citizens require to exercise and fulfil these civic entitlements and obligations." (Bellamy, 2014)

Thus, the current agreed upon definition of citizenship and digital citizenship will reflect the present-day concerns and interpretations of the conceptions of citizenship above, for instance, insisting more or less on the necessity to participate (the republican conception of citizenship) or on freedom under the rule of law (the liberal conception of citizenship). Citizenship, and by extension digital citizenship, is therefore ideologically tinted. In the present day, neo-liberal values put less focus on participation versus personal freedoms, manifest in their vision of a "regalian State." Transposed to the online world, we can clearly see the alignment of such ideals in digital citizenship programmes of companies like Google which put emphasis on "following the rules" and online safety with little to no mention of participation, agency or the possibility to "change" the rules.

Technology as a determinant of digital citizenship

The technologies and technical standards underpinning the Internet – in Lessig's term "code is law" (Lessig, 1999) – play a determinant role in defining the forms of digital citizenship, from the level of participation, agency, all the way to the assorted rights, responsibilities and their enforcement.

Debates around net neutrality should be seen in that light, as its principles safeguard free speech and equal access to the network, which are key components of digital citizenship. Other technical developments such as cryptography, blockchain technology, artificial intelligence, virtual (or augmented) reality or the decentralized web and the spreading of wearable devices will also impact on digital citizenship, by creating conditions of anonymity, promoting freedom of speech without censorship, but at the expense of enforcement of other fundamental rights such as fighting harassment, or criminal activity, or on the contrary, automated instantaneous censorship (via Artificial Intelligence). Augmented reality will allow for more "lifelike" human interactions online and further potential for community formation and developing a sense of belonging via the Internet, building on and reinforcing existing communities like MMORPG (Massive Multiplayer Online Role Playing Games).

Algorithms and artificial intelligence are increasingly at the heart of many of the services digital citizens use: search engines and online platforms rely on algorithms to sort, filter and recommend content, personal assistants rely on algorithms and AI to provide "tailored" feedback to users… The interdependence of algorithms/artificial intelligence and big data also means that more and more data about users needs to be collected for artificial intelligence to progress, including data from connected devices such as smartwatches, sensors etc. Among the many challenges these developments raise, we may underline the phenomenon of "filter bubbles" which isolates users by displaying content which is in conformity with the users' preconceptions/habits, but many other challenges lie ahead for AI and Big Data such as discrimination from accessing certain services, online or offline. The fear of a "Big Brother" Orwellian dystopia is directly related to these advances and substantiated by cases of discrimination on political grounds that currently exist in various parts of the world.

Private interests

The concentration of corporate ownership of key online services and especially social media platforms has raised many questions as to the potential of these new forms of media to enhance citizen participation. The technical features of digital platforms, especially social networking platforms, influence the way users deliberate and interact with each other, leading to a more or less conducive environment for experiencing digital citizenship (Bakardjieva et al., 2012). For instance, Facebook's design favours open-ended exchanges but hinders decision-making and consensus-building.

The concerns about private ownership of the Internet are not solely related to freedom of expression and go beyond. As Rebecca MacKinnon from the New American Foundation puts it: "What is troubling and dangerous is that in the internet age, public discourse increasingly depends on digital spaces created, owned and operated by private companies." (MacKinnon, 2010)

Digital citizenship, participation and power imbalances

The analysis of power and its distribution is also core to understanding citizenship and digital citizenship. As Cruickshank observes, the tools for enhancing citizen participation online are only effective if appropriately empowered. For instance, a municipal discussion board where citizens can post suggestions or online consultations is only a meaningful tool for participation if the authority in place acts on them since the decision-making power is solely in their hands (Cruickshank, 1999).

Power imbalances on the Internet also present a threat to digital citizenship. Some of these are simply an extension of the "pay to play" imbalances (Cotton, 2012) in the physical world. Since many online services rely on an advertising-based business model, influence online can be determined by wealth inequality. In essence, a wealthy brand or wealthy political figure will have the ability to produce more online content, access more communication channels and gain more influence online than less wealthy brands or political figures. The study of successful political campaigns waged online is a case in point (Aaker & Chang, 2010).

The use of psychometric profiling and extension of online marketing techniques to the political realm, thus encouraging behaviours not based on rationality but impulsiveness, emotions or sub consciousness, poses similar risks for democratic culture. While this is an emergent field with little evidence to measure the impact on consumer/voter behaviour, concerns for citizenship and digital citizenship arise since free will or freedom from manipulation is a precondition for their effective exercise.

This is not to say that digital citizenship is rendered inoperable, but rather that careful examination of power imbalances, originating in wealth, technological advances, digital skills, unequal access to the network or any other, is a necessity to assess the ways through which imbalances can be addressed and thereby guarantee the healthy development of digital citizenship in the future. For instance, mass manipulation/surveillance is dependent on centralization and access to user data, something made possible thanks to the prevailing online business models, which rely precisely on the centralization/collection of user data.

Conceptual Model

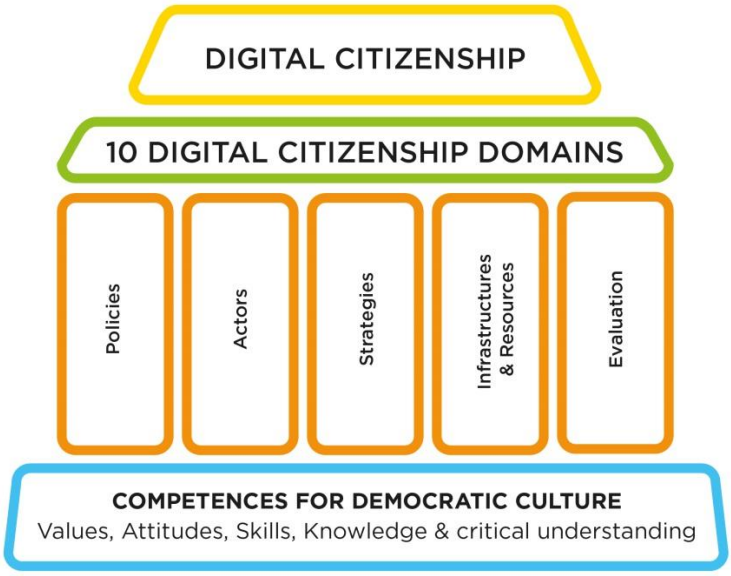
Digital citizenship is a concept that has emerged in policy discourse and academic literature to denote the norms of appropriate, responsible behaviour with regard to technology use (Ribble et al., 2004). This complex term draws together a range of closely related synonyms or concepts including "Global Citizenship" (Parker & Frailon, 2016; UNESCO, 2015), "Global Competence" (OECD, 2016b), "Digital Competence" (Ferrari, 2013; Vuorikari, Punie, Carretero Gomez & Van den Brande, 2016), "Digital Literacy" (Canada's Centre for Digital and Media Literacy, 2016) and "Media and Information Literacy" (Frau-Meigs & Hibbard, 2016; UNESCO, 2013).

For the purposes of this project, the definition of digital citizenship incorporates the three key elements of *digital engagement*, *digital responsibility* and *digital participation* brought about through the critical analysis and the competent use of digital technology underpinned by a concept of citizenship founded on respect for human rights and democratic culture. Accordingly, the following has been adopted as a working definition to guide the project:

> Digital Citizenship may be said to refer to the competent and positive engagement with digital technologies and data (creating, publishing, working, sharing, socializing, investigating, playing, communicating and learning); participating actively and responsibly (values, skills, attitudes, knowledge and critical understanding) in communities (local, national, global) at all levels (political, economic, social, cultural and intercultural); being involved in a double process of lifelong learning (in formal, informal, non-formal settings) and continuously defending human dignity and all attendant human rights.

Figure 1 present a conceptual model of digital citizenship education, summarising its foundations, pillars and scope.

Figure 1 – Conceptual model of digital citizenship



The base of the model is built on a set of competences for democratic citizenship in the key areas of: Values, Attitudes, Skills, Knowledge and Critical Understanding (Council of Europe, 2016).[1]

These are applied in ten key digital domains, derived from a review of the literature,[2] which act as the cross-frame for the model of digital citizenship model (Table 1)[3]

Table 1 – Ten Digital Domains

Being Online	1. Access and Inclusion 2. Learning and Creativity 3. Media and Information Literacy
Wellbeing Online	4. Ethics and Empathy 5. Health and wellbeing 6. E-presence and communications
Rights Online	7. Active Participation 8. Rights and Responsibilities 9. Privacy and Security 10. Consumer Awareness

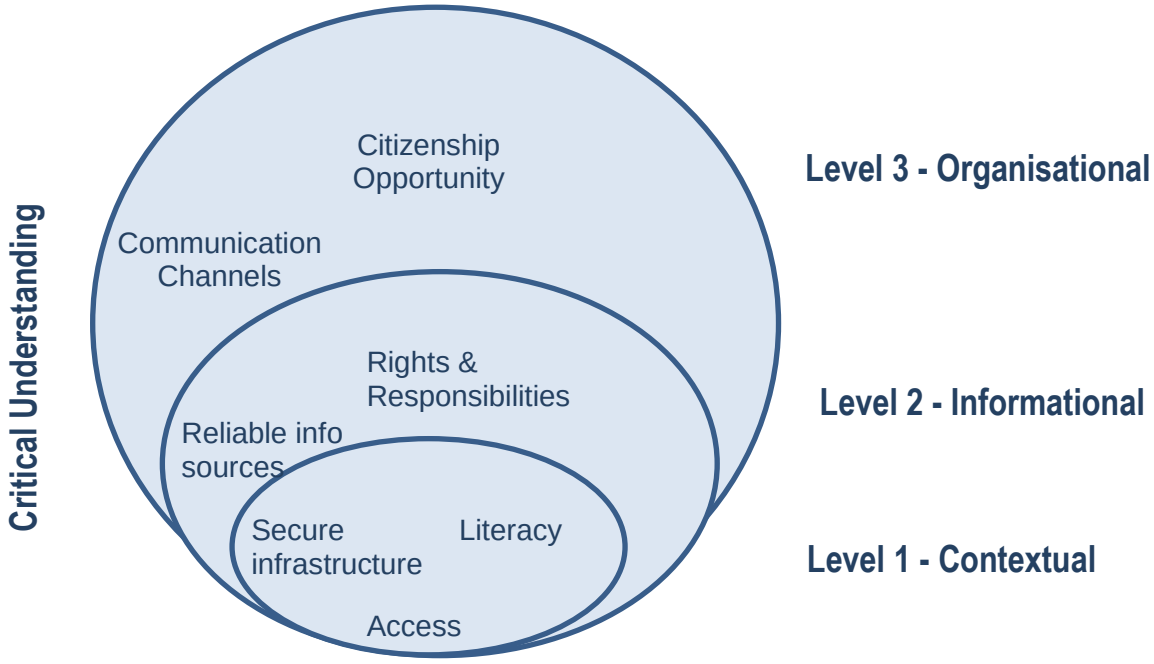
Finally, a review of practice in the field of digital citizenship[4] identifies five essential factors or pillars that shape or determine outcomes, regardless of the context in which projects have been conducted. These pillars therefore support a development model of digital citizenship and highlight elements of sense making practices framed by enabling policy and successful monitoring and evaluation (M & E) methodology. Between these "framing" pillars, the actors – from teachers and learners to content and policy makers – and the resources and infrastructure available, will play a major role in the level of success achieved. However, efficient strategies are at the core of implementing sensible practices that will permit learners of all ages to develop their full potential as active citizens in the democracies of today and tomorrow.

[1] See Appendix 2
[2] *Digital Citizenship Education: Overview and New Perspectives* (forthcoming)
[3] See Appendix 1for a brief description of the 10 digital domains
[4] Expert Group, *Good Practice Survey in Digital Citizenship* (unpublished) Council of Europe.

Guiding Principles

A digital citizen, as defined above, is a person able to actively, critically, responsibly and continuously engage in community life. Such engagement is dependent on contextual, informational and organizational criteria that constitute the guiding principles that can underpin the societal and educational move towards digital citizenship. The 9 guiding principles (Figure 2) defined below not only underpin all digital citizenship initiatives, but can also serve as reference points or benchmarks for the assessment of progress, with critical understanding as a transversal principle.

Figure 2 – Guiding principles to digital citizenship



Contextual Criteria

*The first three guiding principles can be considered the **Contextual** preconditions for digital citizenship.*

1. **Access to digital technology** is a pre-condition to digital citizenship. Without this, even non-digital democratic citizenship has become difficult as ICT is an integral part of everyday life in today's society. On average, almost a quarter of European citizens (76.7%) are reported not to have access to online technology[5]. This figure rises to more than half of citizens worldwide, since just 49.2% of people in the world were internet users at the end of the first quarter of 2017. Out of all member countries of the Council of Europe, almost 20 fall below the European benchmark. In 2014, only nine CoE member countries in the OECD (2016a) were considered to provide an equitable level of access through their educational systems. Although seemingly no more recent data is available on the level of access to internet in schools which, for certain sectors of the population is the main source of equal opportunities, anecdotal evidence through youth participation suggests that this is low. A March 2015 Eurostat report states "*The vast majority of young people used the internet at home, while about half made use of the internet at other people's houses and about 40 % at a place of education.*"[6]

2. **Basic functional and digital literacy skills** are the second pre-condition, without which citizens are unable to access, read, write, input and upload information, publish, participate in polls, or express themselves in a manner permitting them to engage digitally in their community (Vourikari et al., 2016). Too many children, even in Europe, are unable to benefit, or at least fully benefit, from basic education due to poverty, gender, ethnicity and where they

[5] Retrieved June 1, 2017, from: http://www.internetworldstats.com/stats4.htm
[6] Retrieved June 1, 2017 from: http://ec.europa.eu/eurostat/statistics-explained/index.php/Being_young_in_Europe_today_-_digital_world#A_digital_age_divide

live. OECD estimates, for example, that 168,000 15-year-olds in France do not yet have the basic knowledge and skills needed to thrive in modern societies, and adults in only 7 European-OECD countries perform at the benchmark level on the literacy scale (OECD, 2016a).

3. **A secure technical infrastructure** that enables citizens of all ages to have sufficient confidence and trust to digitally engage in online community activities is the third pre-condition that completes the first level of core guiding principles to digital citizenship. This criterion is less objective and hence more difficult to measure, changing over time and influenced by factors including but not limited to political systems, rise in cybersecurity issues and emerging technology trends including the Internet of Things.

Informational Criteria

*The second, **Informational** level is composed of a further three guiding principles.*

4. **Knowledge of rights and responsibilities** is key to engaging actively as a digital citizen, and this shapes and is shaped by values and attitudes. Both capacity building efficacy and outcomes are difficult to measure on this principle for several reasons. In schools, learning about rights and responsibilities is usually lumped together within "religion, ethics and moral education", with insufficient data on the areas covered or resources or information sources used to venture into gauging their impact. Moreover, rights and responsibilities are "lived" rather than taught. Only anecdotal evidence appears to be available on knowledge of rights and responsibilities, with few citizens of any age able to cite more than a limited few of their fundamental rights. Furthermore, project-related surveys (ENABLE, 2017) seem to indicate a sharp decline in classroom and school climate over the past decade.

5. **Reliable information sources** are essential for positive active participation in community life. The advent of big data analytics, data presentation algorithms and profiling, reduced plurality and increased polarisation of information can rapidly lead young citizens into radicalisation, especially if values, attitudes, rights and responsibilities have not been sufficiently inculcated through education in its broader sense. Without reliable information sources, digital citizenship can morph into extremism, discourage participation and even prevent certain sectors of the population from practising their digital citizenship rights.

6. **Participation skills** depends on a range of cognitive and practical skills, the development of which begin at home and continue at home and school from a very early age. These skills combine knowing when and how to speak out, empathy and cultural understanding to fully grasp meaning, critical thinking and oral and written expression skills. Participation capacity is increasingly entering the school curriculum, though currently remains very much performance-related consultations rather than output-oriented open debate and no statistics are apparently available. The Council of Europe is developing a youth participation index to analyse participation opportunities of young people.

Organisational Criteria

*The third level of guiding principles can be referred to as **Organisational**, implying both organisation at the personal and societal level, and comprises the final three principles.*

7. **Flexible thinking and problem-solving** are higher cognitive skills that call on a broader combination of all four areas of the CDC "butterfly" than any of the previous principles. Problem-solving requires understanding of the issues at hand, analysis, synthesis, induction and deduction, but above all it depends on learning activities from early childhood onwards that foster cognitive development through exploration-driven activities. Problem solving is being promoted by the Institute of Prospective Technological Studies, a European Commission research agency, as one of the five essential areas that should underpin all school curricula, along with communication, creativity, responsibility and informational skills.

8. **Communication** is the second guiding principle at the third level, and refers to both skills and tools. Whilst communication tools are readily available to citizens who fulfil the previous seven principles, recent statistics show that citizens today are 99% consumers and just 1% creators of content, and that 64% of all internet content is video streaming (expected to reach 80% by 2020), which reduces possibilities for active engagement and interaction. Moreover, only

between 0.1% and 6% of online content is in languages other than English[7], which also largely reduces possibilities for citizens to be aware of the global context. In the digital world which knows no local or national boundaries, is it important that digital citizens are able to know what is going on in the world beyond their own community?

9. **Citizenship opportunity** is the ultimate guiding principle without which digital citizens are unable to hone their citizenship skills or exercise their rights and responsibilities. Citizenship opportunity calls for a flexible, open, neutral and secure framework where algorithms are unable to filter and polarise data and where citizens can have their say without fear of retribution. It refers to an online world where they can get access to reliable data to build their decisions, public friendly e-government platforms to undertake community-related actions and where they can interact and have their voice heard with respect from other citizens regardless of age, gender, background or other. At a personal level, this calls for self-efficacy that can only be developed through the culmination citizenship-oriented skills, attitudes, values and knowledge.

[7] See UNESCO'Linguistic diversity and multilingualism on the internet'. Retrieved June 1, 2017 from: http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/linguistic-diversity-and-multilingualism-on-internet/

Part 2
Implementing Digital Citizenship Education

Our working definition of digital citizenship places particular emphasis on the role of education, emphasising the continuous process of lifelong learning affecting all contexts in which educational support for digital citizenship takes place, transversally and seamlessly. The notion of Digital Citizenship Education (DCE), therefore, views education as both the spark and as effect of a process of citizenship. In this section, we focus on three aspects of digital citizenship education – stakeholder roles and responsibilities; scenarios for school organisation and preparing teachers – as the basis of an implementation strategy.

Stakeholder Involvement

The survey of practices in digital citizenship undertaken as part of this project identified a diverse range of stakeholders active in in the implementation of digital citizenship programmes. Table 2 summarises the principal stakeholder groups, the distinct perspectives of each and related implications for policy and/or practice.

Table 2 – Stakeholder Involvement in Digital Citizenship Education

ACTOR	IMPLICATION FOR POLICY OR PRACTICE
Students	► educate and protect themselves ► organize genuine participation ► develop empowerment in terms of competences
Parents	► get involved in internet and citizenship debate ► help children balance the social and interpersonal implications of using online technology ► regular communication with their children and schools in order to help develop the skills of involved and informed digital citizens
Teachers	► increase their knowledge and teaching practices in parallel to the interactive tools used by their students ► equip teachers with the competences required for implementing and assessing CDC ► rethink the role of teachers in the digital era
School Management	► consider all options of best practices with regards to internet policy ► include parents, teachers, students, administrators and school board members to be part of the decision-making process for safe, legal and ethical use of digital information and technology within the class environment
Academia	► produce resources and research in pedagogy and didactics in the field of digital citizenship ► locally developed resources, where possible, in order to ensure the most engagement and implication
Private Sector	► participate in new areas of cooperation through a multi-stakeholder and cross-media approach relating to the empowerment of users and the protection of minors ► support a multi-stakeholder approach with shared responsibility to create appropriate conditions for effective digital citizenship ► need to substantially revise Terms and Conditions in a more child-friendly

	manner and push resources to parents and schools
Civil Society	► ability to provide new directions for future orientations in digital citizenship education ► act as watchdog and claim for accountability and transparency from other actors
Local Educating Communities	► develop formal, non-formal and informal education systems to shape children's digital literacy practices ► consider the emergence of so called "civic tech", which uses technology to address various aspects of digital citizenship
Regulatory Authorities	► determine that children's rights are respected within their competencies ► actively encourage education authorities to educate citizens in the digital area
National / International Authorities	► promote fundamental rights and democratic values through multi-stakeholder governance structures

Children and young people are naturally central stakeholders in digital citizenship initiatives and through participation with teachers act to effect policy change. Students have the right to track their own progress towards becoming active, responsible digital citizens through a student-friendly mapping of what this involves and self-assessment tools to help them along this path. The notion that students could be designers and architects of their learning environments may be inherently disruptive, even if the idea is to work in collaboration with classmates and teachers to co-construct learning.

In a connected and largely unregulated multi-screen environment, *the role of parents* in protecting and empowering children is both fundamental and more demanding. Parental engagement around digital technology is an area of challenge and has often been equated with restricting the use of technologies. Studies show that many parents are fearful and anxious about most things linked to their children's online activities, which is having a profound impact on their engaging with notions of digital citizenship. More effort is needed therefore to raise parental awareness of key issues of what citizenship means today and to provide support for a home environment that is built on trust, understanding and a shared vision of responsible technology use.

Teachers play a major role in developing and enhancing the abilities of students to interpret and create digital media, helping them understand their rights, and the boundaries to being a responsible digital citizen. Teachers are ideally placed to guide young people and provide them with opportunities for active participation in society, while emphasizing the value of learning and the role of technology in their lives. To be prepared to guide learners in this manner, however, teachers are increasingly expected to be also knowledgeable on the practices, skills, and resources needed for digital citizenship. Therefore, appropriate resources and continuous training are needed to support teachers in this role.

School management play a key role in establishing policies, including acceptable use policies and digital citizenship guidelines, for safe, legal and ethical use of digital information and technology within the classroom environment. Further support is needed for school management as part of their professional development, including in the field of personal data protection aimed at presenting the key issues related to the data controller's role and proper personal data processing in schools as an element of good management of the institution.[8]

For *the private sector*, the main role to date has been of raising awareness and user/consumer education. Industry participation in digital citizenship requires an approach that is genuinely supportive of a multi-stakeholder approach to shared responsibility, namely an approach in which it is recognised that only through collaboration with all relevant partners at governmental level, in civil society, with educators and with communities of users that the appropriate conditions for effective digital citizenship are created.

[8] GIODO '*Personal data protection: Guide for the principal of the school*' published by the Polish data protection authority, in cooperation with the Centre for Education Development (public teacher training institution run by the Minister of National Education)

Similarly, *regulatory authorities* have a role beyond that of 'supervision' extending to roles as ombudspersons, auditors, consultants and policy advisers. All these activities have a common goal of a greater level of protection for which public education is essential. Data protection authorities, for example, are active in this field whose awareness campaigns can include initiatives aimed directly at children (for instance, via their website) or parents, but also teachers, as well as direct participation in education by supporting teachers in school. The inclusion or not of privacy issues in national curricula falls ultimately under the competence of the state, and not all Member States of the European Union have taken steps in that direction.

The *civil society sector* encompasses a wide range of practices in encouraging students to practice their reasoning skills in many settings, including in practical settings which involve students directly in community building. The Internet has also enabled the formation of local communities dedicated to education in values of democratic culture, critical thinking and ethical behaviour. There is a growing emergence of so-called "civic tech", which uses technology to address various aspects of digital citizenship.[9] Civic tech solutions have been developed by a variety of stakeholders, from engaged tech-savvy citizens, by-products of activist movements (such as the 'sunflower movement'), private companies, local municipalities, civil society, or even national or supranational public authorities. A common form of civic tech is the "hackathon" where stakeholders gather to "hack" at a problem and come up with a solution (often tech related). These hackathons can be organized by citizens themselves, by public authorities, private companies or a combination of all of these via sponsorship and funding.[10]

Finally, supporting young people to be active digital citizens in a safe online environment is the stated objective of several *international and supranational organisations*. According to the United Nations Sustainable Development Goals (Goal 4.7), by 2030 all learners should acquire the knowledge and skills needed to promote sustainable development, including, among other means, through education for sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development. Initiatives supported by the European Commission include the Insafe network (Safer Internet Day) while the Creative Europe programme also has potential to create awareness of citizenship and democratic culture. Similarly, organisations such as UNESCO and the European Media and Information Literacy Forum as well as the European chapter of the Global Alliance for Partnerships in MIL (GAPMIL) have developed specific initiatives in creating awareness of the importance of critical media literacy skills.

Digital Citizenship Education: Implications for School Resources and Infrastructure

Digital citizenship encompasses a broad spectrum of activities and interactions, in schools and in communities, that individuals of all ages can undertake via social media and digital technology. In terms of formal educational policy, therefore, the principles and regulations governing the educational sphere only cover one aspect of digital citizenship practice. Yet, the pre-eminent position of schools in enabling individuals to develop the competences necessary to exercise their rights and responsibilities and fully benefit from opportunities online.

Such a view is one supported by early educational thinkers who supported active pedagogies such as John Dewey (1916) or Célestin Freinet (1994 /1964) who all viewed education and learning as social and interactive processes and in which the school has to be seen as a social institution through which social reform can and should take place. Their proposals have been updated and pushed forward to accommodate the digital requirements by such innovators and reformers as Marcel Lebrun (2007) and Philippe Meirieu (2013). For children to thrive, they all argue, the school setting should be seen as an environment where they are allowed to experience and interact with the curriculum, and where everyone has the opportunity to organise and manage his/her own learning, including with the help of technology-driven media.

Notwithstanding the recognition of the school as a community in educational thinking, the social role of the school has been slow in making its way into European educational policy. The most recent official statistical data compendium indicates "Compulsory core curriculum is still defined at central level in all countries either in terms of its basic content or goals". Furthermore "Schools have least autonomy in those areas that directly reflect the principal goals of the education system" (Eurydice/Eurostat, 2012).

[9] Retrieved June 1, 2017, from: http://civictechno.fr/2016/01/16/cest-quoi-la-civic-tech/

[10] Retrieved June 1, 2017, from: http://eduscol.education.fr/cid95090/le-hackathon-de-l-ecolenumerique.html

This narrow approach is problematic if we consider that the principal goal of schools is to foster and elicit the full potential of every child to become an active, critical and responsible 21st century citizen.

Although curriculum time is, sometimes and in some countries, allocated to moral and civic education, it rarely reaches more than 6-8% in either primary or secondary school level and is very much predicated on a pre-digital view of morals and civics. Technology, meant to cover all facets of ICT, is generally accorded even less curriculum time, often due to lack of equipment and training. The potential for transforming educational practice through initial and in-service teacher training is further constrained by its focus on the existing curriculum rather than on fostering an evolution in teaching methodology and innovative pedagogy (Eurydice/Eurostat, 2012; Frau-Meigs et al, 2017).

As such, digital citizenship education has clear implications for infrastructure and school organisation. An ideal infrastructure should be open, should encourage peer support and should be one where the teacher sets the parameters, in an inclusive and co-operative manner. The requirement is to enable the child to experience digital citizenship in a rewarding and fulfilling way. The ideal infrastructure should include resources in each of the ten digital domains (see Appendix 1) and should go beyond teaching safe use of the internet to foster creative and participative online engagement.

Access to technology is one of the core challenges to fostering digital citizenship. Whilst many parents consider the acquisition of digital competence is a responsibility of the school, schools are often insufficiently equipped in terms of technology and/or connectivity (OECD, 2016a) to enable children to practice their citizenship skills online. The review of practices for the current project showed that in many instances children learn *about* digital citizenship rather than actually practising it with online tools and under the guidance of a qualified adult.

A number of European countries, such as Austria, have experimented with 'Bring Your Own Device' (BYOD) approaches to augmenting access to technology (Attewell, 2015). However, due to the many issues raised, experimentation remains limited. Whilst a BYOD approach can increase pupil engagement and facilitate carrying work between home and school, cybersecurity is a challenge as infected devices can spread viruses and corrupt the school network. Another issue is discrimination between pupils if the latest technology becomes a status symbol amongst peers. Schools generally provide a device to children who are unable to bring one, and there can be a certain stigma attached to this. Theft and damage of devices has also been a challenging issue for schools and families.

Smartphones have proven to be a valuable pedagogical tool in a number of projects[11], particularly given their versatility in project-based learning work. However, mobile devices are also found by many teachers to be a distraction and due to their photographic and video recording facilities, frequently remain in lockers during class time.

Industry has occasionally intervened to equip schools with computer equipment, though the objectives are not fully altruistic. In 2010, one laptop manufacturer distributed 12,000 laptop computers to 2 schools in each of 6 countries, and followed up two years later by equipping 263 teachers in 63 schools in 8 countries (Estonia, France, Germany, Italy, Portugal, Spain, Turkey and UK) (Balanskat, 2013). However, such projects are usually intended to shed light on computer-based pedagogical methodology rather than for capacity building in digital citizenship.

While the role of industry in the survey of practices appears limited – the majority of programmes being supported by public funding – leading technology companies such as Facebook, Samsung and Microsoft have undertaken stand-alone digital citizenship initiatives. Facebook, for instance, has an annual digital citizenship research grant programme that has been running since 2012 and which provides funding for innovative projects and from which some European projects have benefited (European Schoolnet, 2012). The European Commission has also supported research in technology development and ICTs to foster better youth participation and civic engagement.[12]

Alongside the fact that digital citizenship remains on the periphery of the educational policy that defines the teaching, learning and assessment goals of schools, the very organizational structure of schools is also a challenge to a meaningful, long-term transformation of practice. Schools are micro-systems that bring together a whole range of varied actors including administrative staff, teachers and para-teaching

[11] Smartphones in Science Teaching (iStage 2), Retrieved June 1, 2017, from: http://www.science-on-stage.eu/page/display/5/28/1290/istage-2-smartphones-in-science-teaching

[12] See, for example, *WYRED* (https://wyredproject.eu/), a project intended to use digital and social media enabling youth participation in policy. See also *EUth - Tools and Tips for Mobile and Digital Youth Participation in and across Europe* (https://www.euthproject.eu)

staff to pupils, parents and civil society, and nowadays also industry through the provision of educational technology and equipment as well as through broadband connection. The challenge, therefore, is to get all stakeholders working towards a common goal rather than be driven by individual interests goals or values.

Capacity Building: Preparing Teachers for Digital Citizenship Education

Given the plurality of the environment and the lack of guiding policy, most of the initiatives identified in the survey of practices were implemented on a short-term, project-based basis, and most tackled too large a range of targets to achieve meaningful outcomes.

Networking learners through online webinars or Massive Open Online Courses (MOOCs) is another strategy that through scaffolded learning can encourage teachers to reflect on the ultimate goals of education and, as a result, progressively orient their practice towards more sustainable social objectives.[13] Although MOOCs are a cost-effective means of reaching a large number of learners, completion rates are low, estimated by industry in 2016 at less than 15%.[14] Ambassador systems are proving more effective, built around a cascade model with the initial trained group becoming ambassadors able to provide in-time support to local or regional peers over a period of one school year or more.[15]

The *'Digital Citizenship Education for Democratic Participation*' project that began in Odivelas, Lisbon in 2016, following a model proposed by Sefton-Green et al. (2016), is an example of the cascade/ambassador model. Beginning with an in-service teacher course for just 25 pre-school and primary school teachers, this community-based project also involving local services is, after just one year, being rapidly replicated to other schools including secondary schools and other regions. All activities have been documented in a handbook that will underpin roll out of the methodology across Portugal and abroad (Tomé, 2017).

Integrating the concept of digital citizenship via core curricular subjects (e.g. maths, history…) is another means of encouraging teachers to re-orient their practice. Ready-to-implement, but non-prescriptive lesson plans that meet the requirements of the curriculum whilst introducing digital citizenship concepts are eagerly taken up by teachers seeking to make their practice more attractive to pupils. Both the Internet Literacy Handbook (Council of Europe, 2006) and the lesson plans and student activities of the WebWeWant.eu illustrate that, by working with experienced teachers to develop relevant, effective lessons plans around a clear set of outcomes (i.e. the SMART criteria), innovation can progressively make its way into schools. The UNESCO Curriculum for Teachers, and Council of Europe publications such as the Internet Literacy Handbook, 'Compass', 'Compasito' and 'Bookmarks' are further examples of this bottom-up strategy.

Inter-school competitions are popular drivers for motivating teachers to take that extra step to include exploration-driven learning in their classroom on topics beyond the core curriculum. It is in this way that ACES (Academy of Central and Eastern Europe Schools) has managed to foster the participation of 3,600 teachers and at least 25,000 pupils in 15 countries over the past decade, with annual competitions related to the 10 digital citizenship domains. This network of teachers is now cascading their experience to other teachers in their own countries.

Whilst turning policy into practice is challenging, bottom-up strategies can prove effective in orienting education towards concepts such as digital citizenship. An analysis of successful models would seem to indicate that four elements are essential:

- Simple clear, objectives
- Tools and platforms integrated into current practice to foster gradual change
- Assessment, and broad dissemination of outcomes and lessons learned
- Relevance and timeliness of the objectives for all of the actors involved.

[13] For example, see the MOOC on MIL developed by UNESCO in partnership with Athabasca University (http://www.unesco.org/new/en/communication-and-information/media-development/media-literacy/online-mil-and-intercultural-dialogue-courses/). See also the MOOC DIY MIL by Sorbonne Nouvelle University based on cognitive scaffolding and on human rights and awarded the Global MIL award in 2016. https://ecolearning.eu/

[14] Retrieved June 1, 2017, from: http://www.onlinecoursereport.com/state-of-the-mooc-2016-a-year-of-massive-landscape-change-for-massive-open-online-courses/

[15] For example, ECFOLI ERASMUS+ project by Sorbonne Nouvelle University where young ambassadors from Cyprus, Morocco, the Palestine and Portugal are trained in conflict resolution via storytelling and MIL. https://ecfoli.eu/

Appendices

Appendix I – The 10 Digital Domains

The ten domains are conceptually grouped in three groups ("Being online", "Wellbeing online" and "It's my right") with the intention to define better the competences that Digital Citizens should develop. The first group, BEING ONLINE, includes domains that relate to those competences needed in order to access the digital society and to freely express oneself. The second group, WELLBEING ONLINE, includes domains that can help the user to engage positively in the digital society. The third group, IT'S MY RIGHT, refers to competences related to the rights and responsibilities of citizens in complex, diverse societies in a digital context.

BEING ONLINE:

1. **Access and inclusion**

   This domain concerns access to the digital environment and includes a range of competences that relate not only to the overcoming of different forms of digital exclusion but also to the skills needed by future citizens to participate in digital spaces that are open towards any kind of minority or diversity of opinion.

2. **Learning and Creativity**

   This domain concerns the willingness and the attitude towards learning in digital environments over the life course, both to develop and express different forms of creativity, with different tools, in different contexts. It covers competences of personal and professional development to prepare citizens to face the challenges of technology-rich societies with confidence and competence, and in innovative ways.

3. **Media and Information Literacy**

   This domain concerns the ability to interpret, understand and express creativity through digital media, with critical thinking. Being media and information literate is something that needs to be developed through education and through a constant exchange with the environment around us: it is essential to go beyond simply "being able to" use one or another media, for example, or simply to "be informed" about something. A digital citizen has to maintain an attitude relying on critical thinking as a basis for meaningful and effective participation in his/her community.

WELLBEING ONLINE

4. **Ethics and Empathy**

   This domain concerns online ethical behaviour and interaction with others based on skills such as the ability to recognise and understand the feelings and perspectives of others. Empathy constitutes an essential requirement for positive online interaction and for realising the possibilities that the digital world affords.

5. **Health and Wellbeing**

   Digital citizens inhabit both virtual and real spaces. For this reason, the basic skills of digital competence are not sufficient. Individuals also require a set of attitudes, skills, values and knowledge that render them more aware of issues of health and wellbeing. Health and wellbeing in a digitally rich world, implies being aware of the issues and the opportunities that can affect wellness including but not limited to online addiction, ergonomics and posture, and excessive-use of digital and mobile devices.

6. **ePresence and Communications**

   This domain refers to the development of the personal and interpersonal qualities that support digital citizens in building and maintaining an online presence and identity as well as online interactions that are positive, coherent and consistent. It covers competences such as online communication and interaction with others in virtual social spaces and also the management of one's data and traces.

7. Active Participation

Active participation relates to the competences that citizens need to be fully aware of how they interact within the digital environments they inhabit in order to make responsible decisions, whilst participating actively and positively in the democratic cultures in which they live.

8. Rights and Responsibilities

Just as citizens enjoy rights and responsibilities in the physical world, digital citizens in the online world also have certain rights and responsibilities. Digital citizens can enjoy rights of privacy, security, access and inclusion, freedom of expression and more. However, with those rights come certain responsibilities, such as ethics and empathy and other responsibilities to ensure safe and responsible digital environment for all.

9. Privacy and Security

This domain includes two different concepts: Privacy concerns mainly the personal protection of one's own and others' online information, while Security is related more to one's own awareness of online actions and behaviour. This domain covers competences like managing properly personal and others' information shared online or dealing with online safety (like for example the use of navigation filters, passwords, antivirus and firewall software) in order to avoid dangerous or unpleasant situations.

10. Consumer Awareness

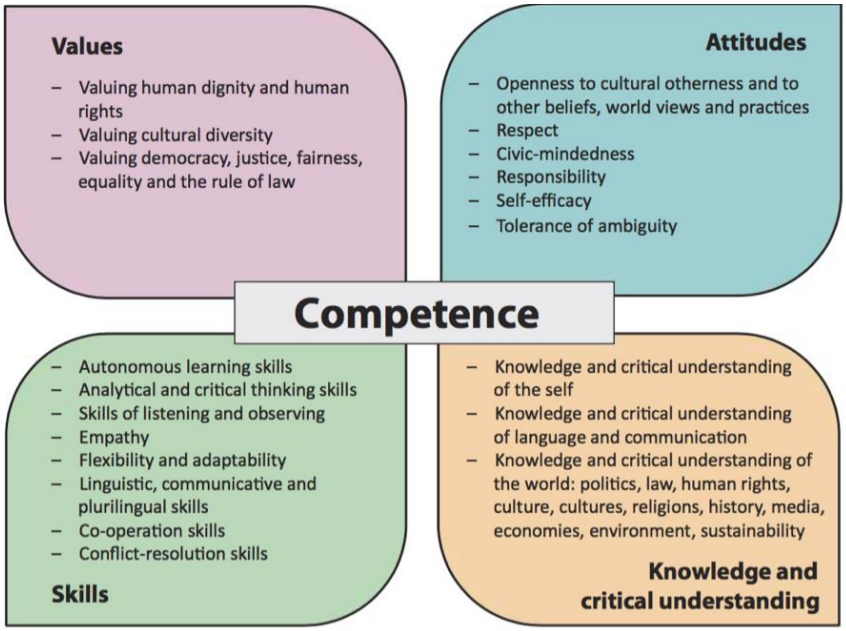
The World Wide Web, with all its dimensions like social media or other virtual social spaces, is an environment where often the fact of being a digital citizen also means being a consumer. Understanding the implications of the commercial reality of much online space is one of the competences that individuals will need to have in order to maintain their autonomy as digital citizens.

Appendix II – Competences for Democratic Citizenship

The base of the model for digital citizenship education is built on the 20 competences for democratic citizenship that are together frequently referred to as the CDC "butterfly" Council of Europe. (2016a).

Competences are broken down into four key areas: Values, Attitudes, Skills and Knowledge and critical understanding.

Figure 3 – The 20 competences for digital citizenship



Appendix III – Members of the Council of Europe Expert Group on Digital Citizenship Education

EXPERT	ACTIVITY	SECTOR
Divina Frau-Meigs	Université de Paris III, Information and communication sciences ; UNESCO Chair "Savoir devenir dans le développement numérique durable"	*Media and Internet Governance*
Brian O'Neill	Director of Research, Enterprise and Innovation Services, Dean of the Graduate Research School, Dublin Institute of Technology	*Children's Rights Strategy*
Elizabeth Milovidov	eSafety Consultant	*Children's Rights, Cyber bullying*
Janice Richardson,	Senior advisor, ENABLE - European Network Against Bullying in Learning and Leisure Environments	
Alessandro Soriani	Dipartimento di Scienze dell'Educazione, Università di Bologna; The influence of Virtual Social Spaces on relationships in classrooms	*Education - Pestalozzi Programme*
Vitor Tomé	Digital Citizenship Education, Media Information Literacy and on News Literacy	
Pascale Raulin-Serrier	Senior Advisor, Digital Education	*CNIL – Commission nationale de l'informatique et des libertés*
Martin Schmalzried	Senior Policy and Advocacy officer, COFACE - Confederation of Family Organisations in the European Union	*Family friendly environment - Safer Internet*

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