**DiPLO**

# Digital literacy for digital natives

## The role of educators in shaping competent and responsible digital citizens

### Abstract

The digital age poses many opportunities and challenges for its citizens. While it appears that digital natives[1] have the self-developed skills required to take advantage and harness risks of the digital environment, various research studies indicate this is far from true. Developments in the digital field call for a systematic upgrade of literacy to the level of digital competence. This is, however, not limited to simply obtaining the competence needed to develop and manage digital tools but also implies the ability to critically assess the impact of technology on personal development and society. Thus, in addition to ICT competences, digital literacy should encompass raising awareness and knowledge about smart use, nurturing values, and an understanding of the digital age. Educators play a pivotal role in digital literacy by developing a holistic understanding of digital issues and then transferring it, through formal and non-formal educational activities, to younger generations, thereby preparing them to become responsible and competent digital citizens.

## Challenges of the digital age

Children nowadays are born and raised in an increasingly digitalised world which affects all spheres of their lives. According to the *UNICEF State of the World's Children 2017 Report*, 71% of youth[2] are online, compared to 48% of the total population (UNICEF, 2017a). Statistics from the *Global Kids Online Serbia* report show that the 17-year-old respondents to the survey on average first started using the Internet when they were 10 years old, whereas the youngest respondents aged 9 first started using the Internet when they were 6 (Popadić, Pavlović *et al.*, 2016).

The online world offers vast opportunities. It enables access to information, knowledge, and ideas, and allows faster communication. However, engaging online also implies challenges that need to be addressed. For instance, according to the data provided by the European Commission, almost half of all 11–16-year-olds in the EU have been

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[1]   The term 'digital native' was coined by Marc Prensky in 2001 in his work titled Digital Natives, Digital Immigrants. The term is used to refer to 'today's young people who were born into the digital era and are growing up exposed to continuous flow of digital transformation' (Kurbanoglu et al., 2014).

[2]   For the purpose of this paper, the term 'youth' encompasses school-age children and younger adolescents.

faced with some form of threat on the Internet (EU, 2018a), such as cyberbullying, self-harm, sexting, fake news, or harmful or disturbing content. Personal online identity – a broad range of data shared online (e.g. usernames and passwords, date of birth, home address, personal identification number, credit card number) – can impact the future of young users in both positive and negative ways (Olshansky, 2016). Over the years, the Internet has become 'so deeply ingrained in children's lives that it is quite hard to estimate how much time they really spend online' (Logar *et al.*, 2016), resulting in problems such as dependency, overuse, and addiction.

In a time when we increasingly implement digitalisation at work, estimates show that '65% of children in primary schools will have jobs which do not exist today' (Devaux *et al.*, 2017). The *Future of Jobs Report 2018* by the World Economic Forum stresses the need to adapt to changes in the labour market that progressively seeks confident and competent professionals. The report explains that proficiency in new technologies, critical thinking, as well as innovation, are some of the skills that will continue to 'grow in prominence'. Similarly, the World Bank (2019, p.70) notes in the *World Development Report 2019 - The Changing Nature of Work* that the ability of countries to 'cope with the demand for changing job skills depends on how quickly the supply of skills shifts'. To respond to the changing nature of work and employment, particular emphasis should be placed on the importance of advanced cognitive, socio-behavioural, and adaptability skills (World Bank, 2019).

The virtual world mirrors the physical world, and as such is governed by national and international regulations. In this regard, 'the more digital advancements become an intrinsic part of our daily lives, the more likely it is that Internet governance[3] will coalesce into the underlying governance of our society' (Kurbalija, 2016). Most governance processes will thus encompass digital policy elements, and their effects on the economy, politics, and society in general. Participation of citizens in shaping global governance demands an understanding of the manifestations and challenges of social concepts, such as security, rights, and economic development in the digital age.

At the same time, youth lack skills and knowledge to address these challenges. Statistics show that younger children lack both the digital skills and the online safety skills of their older peers (Byrne *et al.*, 2016). Recent *Global Kids Online* studies conducted in Argentina, the Philippines, Serbia, and South Africa, show that the percentage of younger children who know how to activate and change their privacy settings ranges from 5% to 40%, in comparison to those aged 15–17 who scored between 68% and 98% (Byrne *et al.*, 2016). In addition, a substantial number of young users[4] reported having contact with unknown people online; being treated in an upsetting way by their peers; or witnessing unpleasant news and pictures, harassment, and discrimination online (Byrne *et al.*, 2016).

While diving into the digital realm that affects every segment of their lives, young Internet users need to be capable of addressing the emerging challenges. To ensure responsible behaviour of digital natives in the online environment, and ultimately create responsible and competent digital citizens, it is of utmost importance to address and bring closer the concept of digital literacy to educators.[5] A number of countries, such as France and Norway, have integrated digital literacy in their national curriculum (Devaux *et al.*, 2017). Other countries are also encouraged to act timely and incorporate digital literacy in education.

It is necessary, however, to better define and understand what digital literacy is, or should be.

## Defining digital literacy

Many institutions have tried to define digital literacy and offer numerous interpretations of the concept. The relevant definitions offered by prominent international actors were considered for the purposes of the policy brief.

The European Union defines digital literacy as 'the skills required to achieve digital competence' (The Government of Malta, 2015, p.8), emphasising 'the confident and critical use of digital technology' which implies 'the knowledge,

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[3] Internet Governance has been defined by the World Summit on the Information Society (WSIS) as 'the development and application by governments, the private sector, and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures, and programmes that shape the evolution and use of the Internet' (Kurbalija, 2016).

[4] Statistics show that 41% of young Internet users in Serbia have been in touch with unknown people online and one-third of them reported experiencing cyberbullying (Byrne *et al.*, 2016).

[5] Our understanding of educators includes the following occupations: teachers and lecturers, pedagogs, social workers, psychologists, parents, guardians, and everyone who works with children and young adults, including content creators and peer assistants.

skills, and attitudes that all citizens need in a rapidly evolving digital society' (EU, 2018b). That said, UNICEF focuses on the critical aspect and a deeper understanding than simply using digital tools. It regards digital literacy as 'the applied technical skills necessary to use and access the Internet, but also the capacity to critically and confidently engage with the online environment' (UNICEF, 2017b, p.11). From a wider perspective, 'just as traditional literacy is understood as a deep competency that goes beyond simply reading and writing, digital literacy implies a deeper understanding than simply using technological tools' (Huynh and Do, 2017). For that reason, a broader approach is necessary, focusing on the concept of Digital Citizenship,[6] rather than the technological aspects of digital literacy.

After taking into consideration numerous sources addressing digital literacy,[7] a suggested definition, therefore, would be:

> *Digital literacy, in addition to ICT competence, implies a critical assessment of the impact of digital technology on personal development and society; in addition to ICT competence, it incorporates the three pillars: smart use, nurturing values, and an understanding of the digital age.*

In this context, smart use refers to skills related to responsible and safe use of the Internet, nurturing values focuses on critical thinking and personal rights and responsibilities in the digital context, while understanding relates to implications of societal and economic concepts in the digital age.



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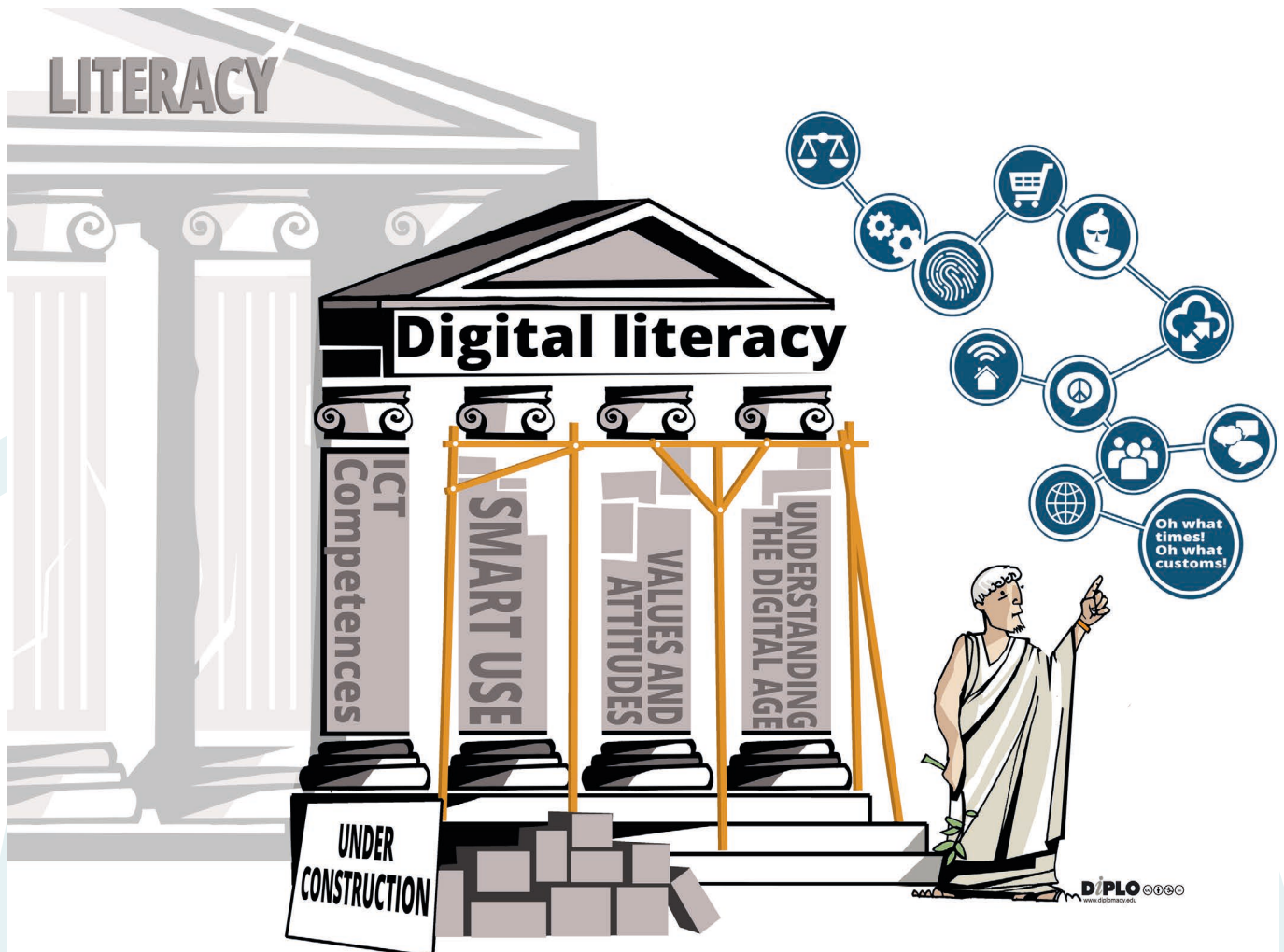
6    The Council of Europe (2017) defines Digital Citizenship as 'the ability to engage positively, critically and competently in this digital environment, drawing on the skills of effective communication and creation, to practice forms of social participation that are respectful of human rights and dignity through the responsible use of technology'.

7    See the bibliography for additional definitions of digital literacy.

# *Recommendations*

To enable youth to act as responsible and competent digital citizens, a systematic approach in education is required. The role of educators in this process is of utmost importance. To be able to transfer their knowledge about digital issues that mostly affect the youth, educators should fully understand the online environment.

Since the social and economic implications of emerging digital technologies are inevitable, an all-encompassing approach to the concept of digital literacy is required. Education on digital literacy should therefore not be solely restricted to ICT courses; it should also be included in other formal and non-formal educational activities.

In this context, several recommendations for implementing digital literacy should be considered. The recommendations address the three pillars of our definition and do not address ICT competences, given that these are increasingly being considered as part of basic education, and as such are included in school curricula.[8]

### Pillar I. Smart use

1. Educators should teach youth about **safety** (i.e., how to safely engage in the online environment), **privacy** (i.e., how to ensure that their personal data and both physical and online identities are protected), and **legality** (i.e., that their online behaviour is compliant with existing laws).

2. Educators should enable youth to **access, recognise,** and **analyse** credible information and use it for personal or professional development, as well as to **share** and **promote** their own valuable findings and ideas in an efficient manner.

3. Educators should be able to recognise and, with the support of psychologists and pedagogs, address the negative impact of digital technologies on the **physical and mental health** of youth (e.g. Internet addiction, overuse and dependency, or aggression caused by inappropriate content including video games, social media, and general information).

### Pillar II. Nurturing values

1. Educators should teach and encourage youth to **think critically** (including assessing online information and comparing sources). They should develop a sense for recognising fake news and propaganda, refrain from distributing them, and assist with combating such practices through informed dialogue.

2. Youth should also be encouraged to maintain a **positive attitude** towards the online community, including proper communication and etiquette. In addition, young Internet users should develop a **sense of ownership** for the content they post online, given the societal implications of their posts, but also because, once published, the content remains online practically forever.

3. Educators should teach youth about their **rights** and freedoms online, and instruct them to express and defend these rights. In addition, they should be taught to understand their **responsibilities** and be mindful of other people's rights, including those of minority and vulnerable groups, and prevent hate speech, racial discrimination, harassment, etc.

### Pillar III. An understanding of the digital age

1. Educators should enable youth to understand the **implications of technology trends on their personal and professional development.** Young generations should learn about future developments, such as the Internet of Everything, big data, machine-to-machine communication and artificial intelligence, augmented and virtual reality, blockchain and cryptocurrencies, 3D printing, brain-computer interfaces, etc., and fully grasp the social and economic implications of the rapidly changing technological environment.

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[8] Since the three pillars of digital literacy overlap, certain instances of recommendations could also be classified under more than one pillar.

2. Educators should help youth understand the **impact digital technologies have on society and its fundamental concepts**, such as accessibility, security, privacy, human rights and freedoms, technological neutrality, intellectual property, taxation, commerce, etc., and enable them to participate in and shape governance of the digitalised society, both locally and globally.

3. Educators should help youth understand that digital technologies are the main propelling factor of **economic growth**, and that they have been **changing the labour market** by opening new (and often unpredictable) career pathways, demanding continuous learning in a multidisciplinary environment. Youth should thus be equipped with the set of skills and knowledge necessary for enabling them to keep pace with the constant developments of the fourth industrial revolution and to ensure that they make the most of the available professional opportunities.

The concept of digital literacy, in addition to ICT competencies, has been recognised as a strategic component for future social and economic development worldwide. Knowledgeable educators are, therefore, considered to be the main agents in the process of implementing digital literacy necessary for personal and professional development of digital natives. Educators thus play a key role in their maturing into responsible and competent digital citizens who will be ready to adequately address and adapt to any form of further development and change in digital technologies and the digital environment.

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