Re-thinking critical digital literacies in the context of compulsory education

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Abstract

Digital technology use has become deeply embedded in everyday schooling and various technology-mediated practices have been adopted to facilitate teaching, learning, communication and collaboration. At the same time there has also been a rapid take-up of digital technology in the lives of children and young people. The importance of developing digital competences is well recognised by policy-makers and a range of frameworks are available. Even so, these often tend to focus predominantly on basic technical skills and a few key issues like e-safety or information literacy, and do not capture the complexity and multidimensionality of teachers and students' current digital practices. In this chapter we argue that critical digital literacies (CDL) need to be framed within the range of social, economic and political factors that underpin digital engagement in the 21st century and we present a new CDL framework created for an innovative EU-funded, international research collaboration. Whilst our account of CDL builds on previous work that explores the intersections between 'digital' and 'literacy', what makes it novel is that it introduces a more open-ended approach towards capturing the different dimensions, such as societal, that can be associated with CDL practices within and outside classrooms. In particular, we view this new CDL framework as more responsive to current digital contexts and practices while at the same time it accommodates some emerging phenomena, which we suggest are key to reconceptualising CDL. We also consider the uncongenial rhetoric of transformation and its impact on how CDL is operationalized in classrooms. We end this chapter by considering the implications that re-thinking CLD in light of this new framework has for research, teaching and policy making globally.

Introduction

As other chapters in this Handbook demonstrate, digital transformation and disruption have become prevalent in most aspects of our everyday lives and

have led to changes in traditional systems of work, education, governance and other areas of private and public life. Within an educational context, digital technology use has become deeply embedded in schools and various technology-mediated practices have been adopted to facilitate teaching, learning, communication and collaboration, whilst there has also been a rapid take-up of digital technology in the lives of children and young people.

In light of this, it appears to be more timely than ever to consider teachers and students' critical digital literacies and develop relevant understandings within the context of compulsory education. As others have highlighted "digital literacy has now entered common parlance in education research, policy and practice" (Nichols & Stornaiuolo, 2019, p. 14) and rapid changes to economic, social and technological environments pose significant challenges for understanding what it means to be digitally literate today (Bulfin & McGraw, 2015). Although the importance of developing digital competences is well recognised by policy-makers and a range of relevant frameworks are available, these often tend to focus predominantly on basic technical skills and a few key issues like e-safety or information literacy, and do not capture the complexity and multidimensionality of teachers and students' current digital practices. In addition, because of rapid digital developments, existing frameworks quickly become out-dated and, therefore, constant re-evaluation and modification is needed.

In this chapter we argue that critical digital literacies (CDL) need to be framed within the range of social, economic and political factors that underpin digital engagement in the 21st century and we present a new CDL framework created as an original output of an EU-funded, international research collaboration (Developing Teachers' Critical Digital Literacies -DETECT[1]). Whilst our account of CDL builds on previous work that explores the intersections between 'digital' and 'literacy', it is novel as it introduces a more open-ended approach towards capturing the different dimensions that can be

[1] https://www.detectproject.eu/

associated with CDL practices within and outside classrooms. In particular, we argue that this new CDL framework is more responsive to current digital contexts and practices and is informed by a range of emerging phenomena, which we suggest, are key to reconceptualising CDL.

Furthermore, the Covid-19 pandemic forced teachers and students to switch to emergency remote education practically overnight, and there has been much heterogeneity in the teaching and learning methods implemented during school closures (Greenhow et al., 2021; Palau et al., 2021). The move to emergency remote education also highlighted the variation regarding teachers and students' critical digital literacies when facilitating remote teaching or engaging with remote learning. In particular, research suggested that didactic modes of teaching prevailed with virtual learning platforms largely been used as repositories for sharing educational resources, and students were offered limited opportunities for online collaborative and creative practices (Brink et al., 2020; Gouseti, 2021). Furthermore, while the lack of digital access was reported to be a fundamental barrier to digital participation and engagement during remote education (Andrew et al., 2020), digital skills were also a key factor in determining whether teachers and students could translate digital technology use into real benefits. For instance, those with lower skills faced greater risk of being left behind compared to those with more advanced digital competences who could reap more benefits during the move to remote education (ibid).

Given the focus of this book on Everyday Digital Life, we are interested in exploring the critical digital literacies, which are particularly pertinent for teachers and students navigating digital worlds within and outside the context of compulsory education. We achieve this through three phases of discussion. First, we present an expanded conceptualisation of critical digital literacies drawing on the DETECT CDL framework. Here we focus our discussion on particular dimensions, which we identify as predominantly relevant for addressing recent and/or overlooked aspects of digital engagement. Second,

we consider the uncongenial rhetoric of transformation manifested in global policy making and reflect on its impact regarding how CDL is operationalized in classrooms. We end this chapter by considering the implications that re-thinking critical digital literacies in light of this new framework has for research, teaching and policy making globally.

An overview of critical digital literacies

Approaches to critical digital literacies vary considerably and multiple definitions and interpretations of digital literacy can be found in academic literature since the term was first coined by Gilster (1997). Furthermore, various conceptual digital literacy or competence frameworks have been developed over the past decades by international organisations and institutions (see European Union, 2021; OECD, 2019; UNESCO, 2018b). Still, despite these continuing and ongoing developments, the field of critical digital literacies is largely characterised by complexity, uncertainty and tensions concerning conceptual clarity (Erstad et al., 2021; Spires, 2019).

In the face of constant and wide-ranging socio-political, environmental, cultural and other changes brought about by digital technology use, we argue that critical digital literacies should be perceived less as a finite and tightly bounded concept and more as an assemblage of meanings and practices (Nichols & Stornaiuolo, 2019). We adopt the plural form ‘critical digital literacies’ rather than ‘literacy’ in order to depart from one-dimensional understandings of the term and emphasise instead its diverse, nuanced and dynamic nature shaped by social, political, cultural and other contexts. In particular, we see engagement in contemporary digital practices as requiring ‘a complex amalgam of linguistic, technological, contextual, and critical skills, knowledge, and understandings’ (Tour et al., 2021, p. 2). At the same time, emphasis is placed on conceptualising digital literacies through the lens of criticality. Indeed, as Pötzsch (2019, p. 226) reasons ‘awareness for and knowledge about the practices and logics of exploitation, commodification, and profit maximisation underlying contemporary techno-capitalism constitute

crucial aspects of literacies, competencies, and skills relevant for the current era'.

Against this background, we now go on to look at how critical digital literacies have been conceptualised within the context of the Erasmus+ DETECT project. As we have already highlighted, we do not perceive critical digital literacies as a tightly focused field but rather as an assemblage of meanings and practices, and for this reason we do not aim to provide a precise -albeit elusive- definition, which will become quickly out dated. Instead, we view critical digital literacies as encompassing eight main dimensions, which in turn accommodate a range of sub-dimensions. More specifically, we draw on a new critical digital literacies framework which has been the result of collaborative work across the nine DETECT project partners and has been informed by a range of research and other activities. These included: i) a systematic literature review in the area of critical digital literacies (see Ilomäki et al., forthcoming); ii) empirical research conducted across the project's four primary and secondary EU school partners (see Gouseti et al., 2021b); and iii) expert panel meetings at various stages that helped to refine and finalise the framework (see Gouseti et al., 2021a).

The main dimensions of critical digital literacies identified in the framework are the following: *Technology Use, Data Literacies, Information Literacies, Digital Knowledge Creation, Digital Communication and Collaboration, Digital Well-being and Safety, Digital Citizenship* and *Digital Teaching and Learning* (see Figure 1).

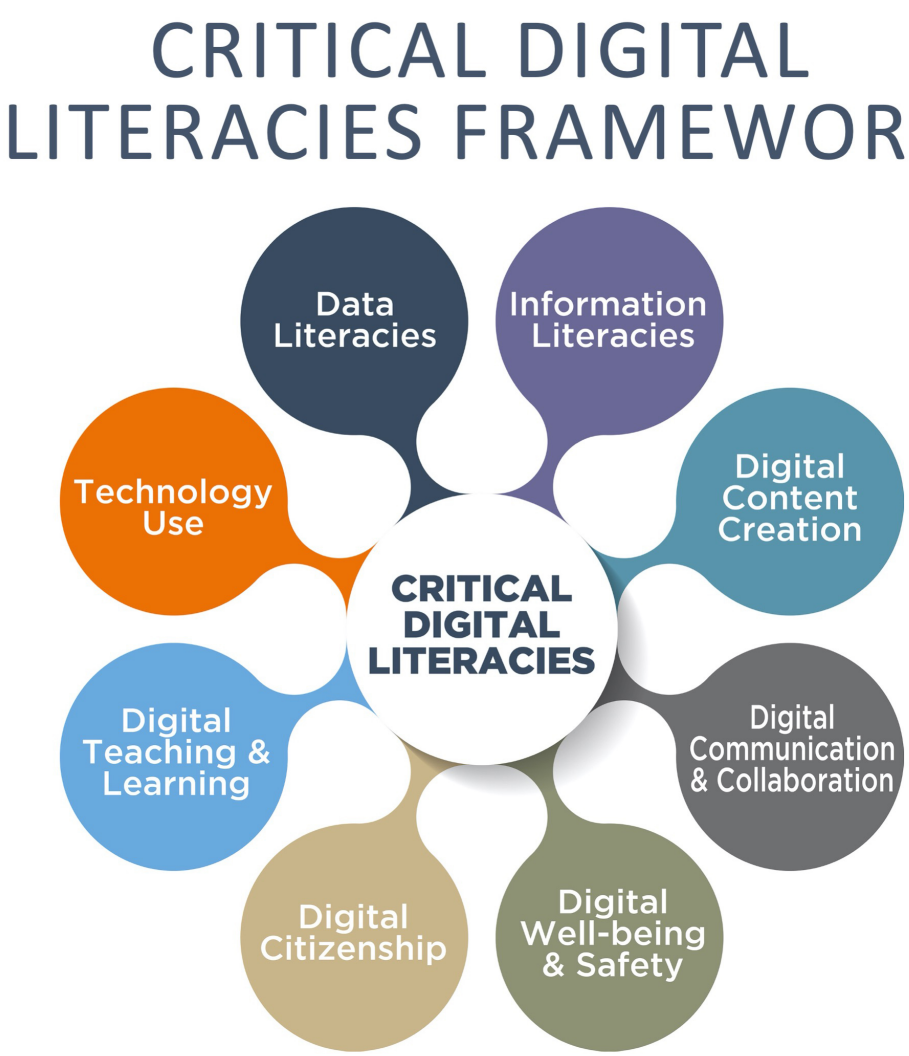

Figure 1: Critical digital literacies framework

Furthermore, an overview of the different sub-dimensions that have been identified as pertinent to each main dimension of critical digital literacies can be found in Figure 2 and these are discussed in detail in a relevant project report (see Gouseti et al., 2021a).

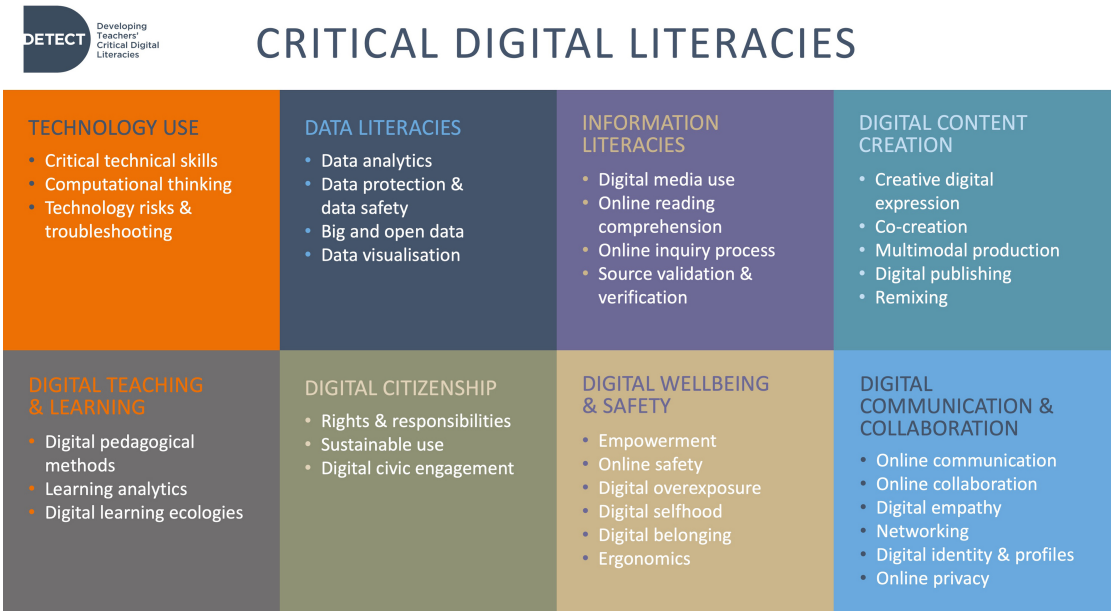

Figure 2: Critical digital literacies dimensions and sub-dimensions

We use this framework as the basis of our discussion but it should be pointed out that the structure of the sub-dimensions is innately somewhat artificial. We acknowledge that there can be potential overlap since some of the sub-dimensions could easily fall under two different dimensions and we also recognise the fuzzy boundaries across some of the dimensions and sub-dimensions. For this reason, these should not be seen as necessarily 'distinctive' but instead as an assemblage of meanings, understandings and practices which aim to capture the complexity of digital teaching, learning and engagement in the 21st century.

As such, although our conceptualisation of critical digital literacies builds on previous work that explores the intersections between 'digital' and 'literacy', it is original as it proposes a more fluid approach towards explicating the various dimensions that can be associated with CDL practices within and outside classrooms. Although we recognise all dimensions of critical digital literacies as relevant in the context of compulsory education, we acknowledge that their appropriateness will vary based on the age and educational level of the students. For the purposes of this chapter we will now go on to discuss in more detail in the next sections particular dimensions and sub-dimensions

which have received less attention by policy making agendas or feature less in current educational practices despite their pronounced relevance for teachers and students' digital engagement.

Data literacies

The digitisation of modern life and educational systems and practices has resulted in great levels of what scholars have named 'datafication'. This refers to 'the process in which actions and behaviours are translated into data that can be recorded, sorted or indeed commodified by governments and private companies' (Pangrazio & Sefton-Green, 2022, p. n.p.). The past decade has seen academic research increasingly focusing on issues relating to data literacy and data justice as schools are becoming more and more 'data-driven'. A range of data is now routinely collected by schools via various technologies with the intention of enhancing organisational efficiency, making pedagogical interventions and gauging students' learning experience and capabilities. On one hand, as Selwyn et al. (2022) argue this 'data turn' is often perceived positively in educational spheres since the use of digital data is seen as a basis for improving and reforming the school system. For instance, learning analytics and educational data mining have the potential to advance our understanding of the learning process and provide insights into educational practice (Gašević et al., 2015).

Social media tools and apps are also often used by educators for professional learning and as a part of teaching and learning activities often with little awareness of data privacy policies (Marín et al., 2020). Similarly, students' everyday digital engagement generates a range of personal data. This can include data that users might give voluntarily to devices and systems (e.g. self-tracking information, social media data, emails and videos); data that devices and systems extract from users involuntarily (e.g., online searches); and data that devices and systems process on behalf of users (e.g. dashboards, analytics pages) (Pangrazio & Selwyn, 2018).

As, such the increased datafication of schooling as well as of our everyday lives has a range of implications. From concerns regarding privacy of personal data and the dataveillance of children and the implication this has for their rights (Lupton & Williamson, 2017) to dystopian visions of data as instrument of surveillance capitalism and totalitarianism (Zuboff, 2019) datafication remains a contested and conflicted area.

In light of the above, we argue that the dimension of data literacies is key to any critical digital literacies framework. However, it is largely overlooked in current policy making agendas and national curricula with the emphasis being predominantly on good practices around GDPR or focus only on one aspect of critical data education. For instance, the UNESCO global framework of reference on digital literacy identifies 'information and data literacy' as a key competence relating to the ability to browse, search, filter, evaluate and manage data while the Children's Commissioner for England recommends that 'schools should teach children about how their data are collected and used, and what they can do to take control of their data footprints' (The Children's Commissioner for England, 2018, p. 22).

However, data literacies are more complex than this and relate to an intertwined set of skills and understandings around data analytics, data protection and data safety, big and open data usage, and data visualisation. This includes knowledge and understandings not only of the 'techniques to process data but also the ability to analyse data as a social and cultural phenomenon with implications for our personal lives' (Gouseti et al., 2021a, p. 11). More specifically, it is imperative to go beyond students' understandings and practices relating to the production of personal data. A critical perspective around data encompasses differentiated areas of practice which include but are not limited to the following: considering the favourable potential of data on democracy and social innovation when shared as open, public knowledge; being able to critically interpret and evaluate graphs and other types of data visualisation; understanding how the sharing and

extraction of personal data can be used to feed algorithms supporting intelligent systems and how greater sense of agency regarding our data and its use can be developed (ibid).

Digital content creation

One dimension of digitality that provides us with new types of possibilities is *digital content creation*. For example, in creative digital expression and digital art production, digital applications are not just tools for producing pieces of art, but they enable the creation of artefacts in forms that are different from anything before, such as augmented or virtual reality systems (Lin & Wang, 2021; Yilmaz & Goktas, 2017). A digital tool might also be an active agent in the creation process, like in poetry writing based on artificial intelligence (Kangasharju et al., 2022). Engaging students in creative digital activities supports their empowerment and promotes taking the role of producer instead of consumer in digital spaces, forums and services (García-Ruiz et al., 2014; O'Byrne, 2014). Producing new digital artefacts (music, videos, pictures, etc.) through remixing existing products is also a new phenomenon associated with digital tool engagement, but it also involves an obligation to be aware of and respect copyright (Burwell, 2013).

Co-creational practices are central in today's world of work, and competences for productive team working are required and expected in various professions (Paavola & Hakkarainen, 2014). Web-based digital tools and cloud services, such as online writing applications, have vitally changed the nature of co-production, because they facilitate the working with digital content collaboratively in ways that have not been possible before. To this end, school education should provide students with possibilities to practice these kinds of co-creational ways of working that require skills for social interaction, coordination of activities, and shared modification of products digitally. Instead, our teacher interview study (Gouseti et al., 2021b) suggested rather the opposite with teachers barely mentioning creative digital practices, especially co-creation, in their discussions about aspects of CDL relevant to take into account in schools. This poses the question of whether teachers

themselves can use digital tools creatively or have sufficient knowledge and skills to guide students' digital creativity.

Engaging in co-creational activities also requires understanding and mastering the principles and practices of digital participation and communication. For instance, findings among Finnish adolescents showed the importance of socio-emotional skills in promoting students' academic well-being and emphasised how it was especially important to better support students who were at risk of burnout during the pandemic (Salmela-Aro et al., 2021). As such, we should seriously consider what kind of challenges and opportunities digitalization creates, e.g., for interaction, empathy, sense of belonging, or inclusion, and how school education could strengthen students' various social and emotional skills especially in digital environments.

Sustainable use

Tackling climate change and environmental degradation lies in the heart of various policy making agendas (OECD, 2021) and education is seen as a key instrument to achieve Sustainable Development Goals (UNESCO, 2017) and address the environmental crisis. Still, recent findings from a review of National Curriculum Frameworks on 100 countries suggest that only 53% of these curricula make an explicit reference to climate change and even when the topic is mentioned, this is varied and often superficial (UNESCO, 2021). One means of addressing the current climate crisis is supporting students with developing climate literacy (Harker-Schuch & Watson, 2019) so that not only can they have relevant knowledge and understanding of environmental issues but they can also develop an awareness around issues of climate injustice and they can become change-makers who are actively involved in the fight against these issues (Halstead et al., 2021).

Discussions around the climate crisis, however, tend to largely focus on issues such as global temperature rises or biodiversity loss and the impact of digital technology use on the planet is largely overlooked. Notwithstanding the gravity of these climate issues, it is also important to consider the

environmental impact of the ever-increasing consumption and use of digital technologies around the world. More specifically, the impact of digital technology use on the planet can take a range of shapes and forms and can span across different areas. For instance, digital hardware production relies on the extraction, smelting, processing and mixing of non-renewable minerals and rare metals often shipped around the world to be assembled with all these stages involving the production and disposal of toxic waste products (Selwyn, 2021).

Similarly, data processing and data storage is also seen to pose great ecological hazards on the environment since this does not happen 'on the cloud' but in data centres and server farms which require substantial physical infrastructure and electricity consumption to run and account for significant greenhouse emissions and environmental pollution (Gregg, 2015; Thylstrup, 2019). Furthermore, it is also important to consider the short shelf-lives of digital technologies and the environmental impact of these in terms of the 'e-waste' produced leading to increased levels of contamination and pollution in some of the poorest areas of the world (Maxwell & Miller, 2020).

For these reasons, we view 'sustainable' use as a central sub-dimension of critical digital literacies and particularly relevant to 'climate literacy'. According to the DETECT CDL framework, developing critical digital literacies around sustainable use refers to 'developing awareness and understanding of how digital technology use impacts the natural environment and how it contributes to digital pollution' (Gouseti et al., 2021a, p. 26). This includes making sense of how digital technology use contributes to energy consumption and greenhouse gas emissions and understanding how the inappropriate disposal of digital devices causes environmental contamination and pollution. This will empower teachers and students to consider not only how educational technology use can be made more sustainable within the school but also at personal level.

This emphasis on developing awareness around sustainable use of digital technologies ties in with efforts to promote climate literacy in the curriculum and supporting students with understanding the materialities of digital technologies and creating appropriate attitudes around their use and care. As Houston and Jackson (2016) argue establishing cultures of 'ethics of care for materials' and the 'right to repair' among schools and student communities is particularly relevant in light of the ongoing climate crisis.

Digital civic engagement

The internet has created a forum for digital participation and has the potential to facilitate different opportunities and modes of online engagement. As early as 2005 Livingstone et al. reported how young people used the internet for various participation activities, such as communicating, peer-to-peer connection, interactivity, digital content creation and visiting civic or political websites depending on a range of demographic factors (2005). Over the years, the opportunities for online participatory activities and the different types of digital engagement have increased. Such opportunities can emerge from social media use and out-of-school activities, but also these can constitute formal educational activities, such as taking part in online collaborative projects with other schools.

An essential and relatively new type of digital participation is digital civic participation, or else known as digital activism, which can consist of active production of online content, participating in digital social platforms, moderating groups, engaging in polling, boycotts, buycotts, protest movements, and political campaigns (Vassallo, 2020). Although these types of participation might be more pertinent to older students and adults in general, and less relevant for younger children, there are studies, which suggest that, online civic activism should also be taken into account at school, as a way of facilitating participation in the democratic society. According to Vassalo (ibid), digital activism is a relevant example of political involvement,

especially among younger individuals, while it is also relevant for compulsory education students.

Gleason and von Gillern (2018) investigated high school students' participation in informal and formal learning spaces and the development of digital citizenship. They suggested that in-school, traditional citizenship education and out-of-school activities aimed at civic engagement can be integrated through a social media-facilitated curriculum. As Castellví, Díez-Bedmar, and Santisteban (2020) emphasised this of course raises questions about teachers' competence to teach societal issues related to digitality for democratic participation and how these can be taught through citizenship education. To this end, digital civic participation is something which needs to be introduced to learners at all levels, with schools stipulating effective environments within which to teach responsible physical and digital citizenship.

Digital wellbeing and digital identity

Digital well-being is an emerging issue as the daily life of all people is so profoundly connected to digital technology use and this can have implications for one's physical and mental welfare. Gui et al. (2017, p. 163) defined digital well-being skills 'as a set of skills needed to manage the side effects of digital communication overabundance' and instead achieve strategic attention and avoid the stress that the overwhelming flow of information can cause. For instance, for children and young people this can relate to mitigating the risks associated with social media engagement or regulating the time used for gaming. It appears that digital well-being in children's and teenagers' life is often investigated from a negative point of view, such as not becoming bullied (Liau et al., 2017) or by increasing e-safety also digital well-being increases (Vanderhoven et al., 2016).

During the recent pandemic, for instance, the well-being of children and teenagers has been often presented through a negative lens, such as

focusing on the isolation of peers, lack of teacher support and too demanding independent learning (see Salmela-Aro et al., 2021). Digitality is, however, such a major part of children's and teenagers' life that well-being should be thought also from a positive perspective, such as empowering individuals to seek and create connections and friendships online, participate in collaborative gaming, having others to talk with about difficult issues (e.g., about sexual minorities), and learning digital skills and competencies. For instance, research conducted with young people around the world reported that active digital participation and online engagement are critical to realizing one's own rights in the contemporary world (Third & Moody, 2021).

Similarly, other case studies have reported on digital practices that have supported students' digital well-being. One such example relates to facilitating the empowerment of teenage girls who during summer camps had various activities with digital technology. Their technology literacy skills improved but, moreover, they investigated digital identities through their own production of digital outcomes (England & Cannella, 2018). Also various examples of students as producers have reported positive results such as making videos, writing lifestyle blogs, and engaging in online role-playing games (Kupiainen, 2013) or creating games collaboratively (Mouws & Bleumers, 2015). As such, while enhancing students' understandings regarding online safety and how to mitigate online risks remains relevant, it is also important to foreground and address their needs around agency and empowerment so that they can also reap the positive benefits of online participation and engagement.

Last, the increasing digitisation and platformisation of schools can reconfigure the work of teachers and impact their well-being negatively since the time and place that 'work' takes place have shifted and the boundaries between online and offline have become more blurred. For instance, research in this field has shown how the extension of work outside school due to digital technology use can lead to digital overload and the expectation for an 'always-on' mode of working without setting boundaries between work and home, and this can have serious implications for one's health and well-being (Heffernan &

Selwyn, 2021). As such, it is important for educators to take appropriate steps to ensure that they manage their digital workload effectively and maintain a healthy and positive work/life balance.

Digital empathy

The concept of digital empathy is multifaceted and can be conceptualised in a plethora of ways. Within the CDL framework digital empathy is, firstly, associated with a teachers or students' ability to recognise and respect the feelings of other participants within an online environment. For instance, as Andrejevic and Volcic (2020) emphasise the utilization of digital media can raise concerns regarding increasing polarization and extremism and the internet can give voice to dangerous forms of anti-empathy. Therefore, there is no doubt that teachers and students alike need to be aware of how private and public online actions can have a significant negative impact on the wellbeing of others. It is important for both students and teachers to understand that empathy, including acting empathetically in digital spaces, can and should be learnt and taught - empathy is a skill, not a personal disposition (Friesem, 2016). Some methods have been suggested in research literature to promote students' digital empathy, like video production activities (Friesem, 2016; Jiang & Gao, 2020), or computer games targeting empathic learning (Wu et al., 2020) but there definitely is a need for more examples and guidelines about practical and easy, yet proven, methods to teach digital empathy as part of school education.

At the same time we offer an alternative interpretation of empathy by looking at it through the lens of digital inequalities. There is a wealth of research that reports on students' experiences of long standing digital inequalities, such as the so-called 'homework gap' (Anderson & Perrin, 2018). Others have also emphasized the importance of 'digital capital', which refers not only to externalised resources (such as digital access) but also to internalised digital competences (Ragnedda & Ruiu, 2020). More recently, the move to emergency remote education has demonstrated that 'digital inequalities are as entrenched and important an issue as ever' (Selwyn & Jandrić, 2020, p. 992)

and empirical findings have suggested that digital inequalities have been exacerbated during the pandemic particularly for children from low-income families (Andrew et al., 2020; Bayrakdar & Guveli, 2020).

To this end, digital empathy is seen 'as having a deep awareness and consideration in relation to one's access to digital infrastructure, internet connectivity and digital competences' (Gouseti et al., 2021a, p. 21). More specifically, within a compulsory education context this means that teachers are attuned and alert to students' needs relating to digital technology use. They acknowledge that students may have diverse online experiences and varied levels of digital access and competences and they are able to address these experiences and needs accordingly. Furthermore, they are aware of potential accessibility issues when planning their lessons and homework tasks and they ensure that all students have access to the digital resources, virtual learning environments etc. used for teaching and learning.

In light of the above, schools have a very important role to play with regard to extenuating digital inequalities instead of reproducing or exacerbating these. Although schools alone might not be able to address issues relating to home access and infrastructure, they can instead serve as an important space in which teachers develop digital empathy and students are provided with opportunities to enhance their digital literacies. Recent research findings highlight how the school environment can have a compensatory effect since both the frequency and quality of use of ICT at home are more affected by school ICT integration than by a student's socio-economic-status (González-Betancor et al., 2021). As such, schools need to explore ways to address digital inequalities by creating more opportunities for students to develop critical digital literacies, establishing relevant support systems for teachers and families, and considering whether a post-pandemic over reliance on online educational practices might widen further the so-called 'homework gap'.

The uncongenial rhetoric of transformation in policy making

As highlighted earlier in this chapter, the ongoing digitisation of societies and the impact this has had for the everyday lives of those who live within them is seen to be shaping policy making and has resulted in the development of a range of frameworks and strategic plans in the areas of digital literacies or digital competences and capabilities. These at large aim to monitor, assess and further enhance citizens' digital literacies with the ultimate aim often associated with building employment capacity and upskilling the future workforce to meet the needs of the modern economy. For instance, according to UNESCO (2018) digital literacy is defined as 'the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technologies for employment, decent jobs and entrepreneurship' (p.6). Similarly, the new Digital Education Action plan developed by the EU (2021) sets out two priority areas that focus on the development of a high-performing digital education ecosystem, and the enhancement of digital skills and competences for digital transformation. More specifically, digital skills identified as relevant include basic technical competences, computing, 'digital literacy, including tackling disinformation', 'good knowledge and understanding of data-intensive technologies, such as artificial intelligence (AI)' and 'advanced digital skills, which produce more digital specialists' (ibid, n.p.).

Notwithstanding the relevance and importance of supporting people of all ages with developing such digital capabilities in order to access and participate in increasingly digitised societies, it is equally important to acknowledge the pertinence of other soft skills or competences (Schulz, 2008) such as critical thinking, creativity, collaboration and problem-solving and consider how these are particularly relevant for technology-mediated social practices not only for employment but for individuals in their daily life. Some of these competences do feature on recent frameworks, for instance the DigitCompEdu framework includes areas such as fostering learners creative

engagement, deep thinking and problem solving or developing their awareness of the environmental impact of digital technology use (see Redecker, 2017). Still this example is the exception rather than the rule and policy making agendas continue at large to be driven and shaped by the uncongenial rhetoric of digital transformation and are underpinned by the disputable notion that education needs to cater to the needs of the global networked society (Biesta, 2013). This is particularly contested since it is based on 'a utilitarian approach of education, that takes a global competitive economy as an unquestioned frame of reference' (Volman et al., 2020, p. 651).

Another viewpoint that is missing from the policy-driven digital strategies and frameworks is the absolute value of individuals to feel empowered through digital means: be creative, express themselves, feel competent and self-confident, and have experiences of belonging and contacts with other people relevant for oneself. All these have a significant influence on well-being. When emphasizing instrumental values, human aspects are often overlooked, and this is accentuated in the discussions about digitization and digital competence. It is important to also highlight those aspects of digitalisation which emphasise amongst others freedom of expression, opportunities for life-long learning, or being literate as essential elements of human rights (Koren, 2021).

As discussed in the previous section, the area of critical digital literacies should be perceived as a complex assemblage of meanings, understandings, skills and practices which should not be shaped merely by neo-liberal agendas but instead by social, political, cultural and other contexts. We need to remain mindful that, for teachers and students alike, engagement with technology does not inevitably have to be associated with performativity and digital transformation, and with acquiring competences suited to fit the future knowledge economy as political agendas appear to dictate. Quite the contrary, in light of the increasing platformisation, datafication and automation

of educational institutions, there is a pressing need to support teachers and students with developing 'a critical disposition in a context in which technical proficiency is prioritised' (Pangrazio, 2016, p. 163). This is particularly relevant since the various dimensions of critical digital literacies are also transferable across digital contexts and, therefore more relevant to the fast-paced realities of their everyday digital practices (ibid). As Livingstone et al. (2020, p. 197) point out:

> Even when children develop the operational skills necessary for functional internet use, challenges remain in ensuring they have the critical, informational and creative skills for uses that bring tangible outcomes of value in their everyday lives.

Despite the shift in academic literature from prescriptive skill-based taxonomies of digital literacies to looser conceptualisations of the term that aim to capture people's social practices with digital technologies and emphasise the importance of criticality, policy and curricula documents continue to prioritise digital upskilling and transformation (Nichols & Stornaiuolo, 2019). This is particularly problematic for two reasons. First, teachers' practices are at large shaped by curricula imperatives, assessment regimes and other educational policies rather than their own perceptions and experiences of critical digital literacies. In other words, even if teachers acknowledge the relevance of supporting their students with developing often overlooked dimensions of critical digital literacies, their practices will instead by shaped by national curriculum aims and assessment regimes (Gouseti et al. forthcoming). Similarly, Oudeweetering and Voogt's (2018) study also highlighted that the dimensions of digital competencies that were less integrated into teachers' practice were those who had not been integrated into education policy.

The second reason why the prioritisation of digital skills for future employability and upskilling is problematic relates to Initial Teacher Education (ITE) programmes and teachers' continuing professional development (CPD).

Since ITE programmes and formal CPD activities are largely shaped by national educational policies and curricula, it is only natural that they will also focus on equipping teachers with '21st century skills' and overlook other relevant dimensions of critical digital literacies. For example, research has highlighted the pressing need to re-imagine prevailing forms of cybersafety education in schools 'to complement more critical and agentic forms of digital learning' (Pangrazio & Selwyn, 2020, p. 14) and enhance teachers' critical perceptions of data literacy (Marín et al., 2020). In the same vein, Nagle (2018) emphasises the relevance of supporting preservice teachers with developing critical social media literacy and reasons that critical conversations around this area are lacking in teacher education.

Some implications of re-thinking critical digital literacies for compulsory education

Digital technology use has the potential to provide a range of new opportunities for teaching and learning as well as for other areas of life, and as our CDL framework demonstrates, a range of new dimensions of critical digital literacies are now required for teachers and students alike. Children and young people are quick to adopt and experiment with new possibilities, but they should not be left alone in this or rely only on the influence of peers or the supervision of parents and homes. Teachers and schools need to stay on track with the developments and take responsibility for how the new trends - both possibilities and challenges - are taken into account in the education of children and young people. Digitality is also a phenomenon which stretches to various domains and topics of curricula. For this reason, teaching new digital competencies in schools cannot be a responsibility of an individual teacher, but a collaborative activity of teachers and all members in the school community.

At national and international level, these new digital possibilities present a continuous challenge. Teachers and schools need resources, training and guidelines on how to provide educational opportunities related to digitality

equally for all, but also to balance the opportunities with students' well-being and find meaningful pedagogical practices which should be based on visions of digitality in the future. To this end, countries need to consider whether their current national curriculum addresses the increasingly more complex range of critical digital literacies required for teaching, learning and living in a digital world. For example, while research acknowledges that young people's digital experiences are diverse and they need not only operational skills but also critical, informational and creative skills in order to reach tangible outcomes of value in their everyday lives (Livingstone et al., 2020), this is not often followed through when national curricula are developed or redesigned.

Some countries have responded to this challenge and Godhe (2019), for example, highlights how the conceptualisations of digital competences in Nordic curricula share an emphasis on societal issues and a critical and ethical approach. Similarly, Oloffson et al. (2021) report that within a Nordic policy making context there has been a shift from a focus on technological competence to a more stretched out interpretation of digital competences that includes dimensions that acknowledge citizens' role in the digitalised society. However, these are examples from a Nordic context and more systematic approaches are needed in order to address the discrepancy between the complexity of students' digital experiences and how these are operationalized as digital literacies or digital competences in national curricula, teacher training programmes and policy making agendas all over the world.

A recent review of the literature on critical digital literacies revealed that especially the research articles (compared to policy documents) too often emphasised negative consequences or dangers and problems associated with digital technology use, and at large focused on adults' point of views (Ilomäki et al., under review). Whilst our work on critical digital literacies joins an emergent body of research that aims to identify the complexity of capturing the multi-dimensionality of critical digital literacies, more research is needed to explore some of these rather overlooked sub-dimensions discussed in this chapter. In addition, research should give voice also to children and young

people and capture their understandings and experiences in relation to these complex issues.

Conclusion

All the above point towards the need for re-conceptualising critical digital literacies and acknowledging the complexity of supporting teachers and students with developing not only technical skills but a critical understanding of how to navigate digital environments and participate in a digitised world safely, responsibly and ethically. Suffice to say, developing critical digital literacies is not something that should be 'done' to educators and students but instead they should play active roles in deciding how this multifaceted terrain of critical digital literacies can be operationalized in the context of education.

As discussed in this chapter, policy making agendas tend to overlook the multidimensionality of critical digital literacies and instead promote a competence-oriented approach seen as suitable for supporting students with developing '21st century skills' pertinent for their future employability. However, supporting teachers and students' with developing diverse, complex, multimodal critical digital literacies essential for teaching, learning and living in a digital world requires the development of relevant international and national policies, curricula documents and teacher training opportunities. This is certainly an ambitious ask as it would involve a reorientation of policy agendas away from the logics of education seen as having to cater to the needs of the global networked society (Biesta, 2013).

At the same time, policy making efforts to support children and young people with participating in an increasingly interconnected and digitalised world predominantly focus on minimising risks and 'harm'. Relevant efforts instead should also be focused on facilitating the conditions needed for their empowerment and enabling them to express themselves creatively, become autonomous, active and critical digital citizens and develop awareness about their digital rights but also the responsibilities that come with self-expression.

In conclusion, we perceive the DETECT CDL framework as a timely and novel response to teachers and students' current needs in relation to critical digital literacies and as a useful tool for informing the redesign of national curricula and policy making agendas. Still, our understanding of this area should continue to evolve and be shaped by future developments in this field as well as by teacher and students' voices around their digital experiences and critical digital literacies needs.

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