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ACTIVE CITIZENSHIP FOR THE DIGITAL SOCIETY.
EXPERTISE, BEST PRACTICES AND TEACHING
IN THE DIGITAL ERA

edited by
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1. COMPETENCE PROFILES UPDATE AND IMPACTS FOR THE FUTURE DIGITAL SOCIETY: AN EUROPEAN PERSPECTIVE[1]

by Stefania Capogna[*] and Danila Scarozza[**]

Abstract: *The essay aims to reconstruct the European perspective concerning the development trends determined by the digital revolution and its outcomes at work in terms of new profiles, skills and risk categories that are prefigured for citizenship at all ages. The essay focuses on digital competence for young people, digital competence at work and digital competence for active citizenship, starting from the European policies and strategies about digitisation. The essay concludes with a critical reflection on the need to move away from a "reactive mode" and adopt a "proactive position" to govern the digital revolution by promoting people's active and co-responsible participation. A critical issue for governing any society lies in its founding values. Hence, there is a need to ask critical questions about values, ethics and social justice, and to move beyond technological determinism.*

Key words: Digital technologies, Digital Competencies, Active Citizenship, Changing needs, education system, digital society.

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L'AGGIORNAMENTO DEI PROFILI DI COMPETENZA E GLI IMPATTI PER LA SOCIETÀ DIGITALE DEL FUTURO: UNA PROSPETTIVA EUROPEA

Abstract: *Il saggio mira a ricostruire la prospettiva europea in relazione ai trend di sviluppo determinati dalla rivoluzione digitale e i suoi esiti sul lavoro, in termini di nuovi profili, competenze e categorie di rischio che si vengono a prefigurare per la cittadinanza, a tutte le età. A partire dalle politiche e dalle strategie europee in tema di digitalizzazione il saggio si sofferma sulla competenza digitale per i giovani, competenza digitale sul lavoro e competenza digitale per la cittadinanza attiva. Il saggio si conclude con una riflessione critica circa la necessità di allontanarsi da una "modalità reattiva" e adottare una "posizione proattiva" per governare la rivoluzione digitale, favorendo la partecipazione attiva e corresponsabile delle persone. Una questione critica per il governo di qualsiasi società risiede nei suoi valori fondanti e chiama in causa la necessità di porre domande critiche sui valori, l'etica e la giustizia sociale e di andare oltre il determinismo tecnologico.*

Key words: Tecnologie digitali, Competenze digitali, Cittadinanza attiva, Cambiamento, Sistema educativo, Società digitale.

Introduction

The world is changing at a rapid pace with new technologies emerging every day. The increasing use and reliance on digital technologies brings forward a myriad of major changes in education, business and society (Van Veldhoven and Vanthienen, 2022). To talk about these changes, the concept of digital transformation was introduced back in the year 2000 (Patel and McCarthy, 2000). However, it was only after 2014 that the term

swiftly grew in popularity, both by practitioners and researchers (Reis *et al.*, 2018). Among the different definitions proposed for digital transformation, the most useful for the aim of this study was "the changes that digital technology causes or influences in all aspects of human life" (Stolterman and Fors, 2004: 3). It is worth noting that digital transformation is not an entirely new concept: its roots can be found in digitalisation, i.e., the sociotechnical process in which digital technologies are adopted at a large scale (Legner *et al.*, 2017), even if digital transformation is framed as a broader transformation compared to digitalisation.

Digital transformation affects many aspects of daily life. Information and communication technology (ICT) provides more than just an infrastructure that can facilitate access to information and private and public services. It influences people to interact, communicate, learn, work, build trust in others, participate in the democratic process and spend their free time. As students, workers and citizens, people need the competence to access information and perform the tasks that are done through ICT while preserving their privacy and security. If people have the necessary skills and competence, digitalisation offers considerable potential to not only disseminate knowledge, improve political engagement and increase the efficiency of public services, but also to enable new forms of leisure.

Nevertheless, while digital transformation can increase well-being, it also creates new risks, such as over-consumption, unwilling exposure of personal information or cyberbullying. Exposure to such risks may harm children's performance at school and the development of their skills. The increasing digitalisation of many services, both public (e.g., e-government, e-health) and private (e.g. e-banking) can lessen people's opportunity to interact with others, reducing their sense of participating in, and belonging to, communities and societies.

Starting from these premises, digital competence has become a key concept in discussions on the skills and understanding learners need in a digital society (Gallardo-Echenique *et al.*, 2015). However, it has been interpreted in various ways in policy documents, academic literature and learning practices (Ferrari, 2012; Gallardo-Echenique, 2012). Digital competence is essential to how we live, learn and work. The confident and critical use of digital technology is the key to supporting lifelong learning, active citizenship, employability and inclusion. Citizens can wield their digital competence to access information and support, access new learning and employment opportunities, be creative and entrepreneurial, find new opportunities and help others. Digital competence may be considered a multi-faceted concept that emerges from several backgrounds (Ala-Mutka, 2011; Ilomäki *et al.*, 2011; Gallardo-Echenique, 2012; Ferrari, 2012). It is closely related to literacy approaches, but it is not identical. Digital competence is regarded as a core competence in policy papers, but is not yet a stable concept (Ilomäki *et al.*, 2011; Gallardo-Echenique, 2012). These different notions mean there are still no clear assessment guidelines for digital competence (Ananiadou and Claro, 2009). While some perceive digital competence as the technical use of ICT, others define it more broadly as knowledge application or as 21st century skills.

A digital society highlights the need for «an educated citizenry capable of accessing, evaluating, organising, interpreting, and disseminating information in increasingly digital formats exchanged over enabling technologies» (Somerville *et al.*, 2007: 9). People must develop a new sense of self-confidence to master technology and digital services. For this reason, this paper investigates the digital competence people need to make the most of the digital society at three stages of life/analysis: 1) young people in

an educational context, 2) people in a work context; 3) citizens in the digital society.

Despite prior work on digital competence and its relevance in life today, there still exists a lack of understanding surrounding the phenomenon (Vial, 2019). The goal of this paper is to provide an overall framework for this topic, opening a discussion both on the current and future research, and on policy orientations.

1. The European Framework: policies and strategies

In a complex and dynamic scenario, characterised by the sudden and continuous changes due to technological innovation, it becomes necessary to acquire and develop adequate digital skills. In the last decade, the labour market, educational systems and, more in general, society has been undergoing major transformations. In particular, the educational system is called upon to assume a leading role, as well as a great responsibility, in educating the ruling class, the workers and the citizens of the future, who will always have to learn, in any context, in a digital society.

Europe increasingly invests in policies, strategies, practices, and training on digital competence. All Europeans need digital skills to study, work, communicate and access online public services. Nevertheless, many Europeans do not have adequate digital skills (Cedefop, 2018). The Digital Economy and Society Index (DESI) shows that 4 out of 10 adults and every third person who works in Europe lack basic digital skills. In this context, European investments include a particular focus on the education system since education plays a particular role in providing both young people and adults with knowledge and soft and hard skills, offering an opportunity to develop skills in a knowledge-based and increasingly digitised economy. The Council of the European Union,

starting from the principles declared in European Social Law, according to which all citizens have the right to participate actively in social life and to manage transitions in the digital society, has defined a reference framework with the aim of: i) identifying the key competences needed to exercise the right of active citizenship, improve employability and personal fulfilment, health and social inclusion; ii) supporting all interested parties involved; iii) promoting the development of digital skills. The Council specifies that digital skills must allow citizens an aware, safe, critical and responsible use of digital technologies at work, for learning, for participation in social life and for social inclusion. The EU recommendations, which underline the importance and usefulness of digital technologies, specify that the acquisition of adequate digital skills must also include the knowledge of the limits and risks of such technologies, so that they are used in a conscious, responsible, and ethical way (The Council of the European Union, 2018). Considering the importance of improving people's digital competence so as to thrive in the digital society, the European Commission developed a new *Action Plan* for digital education, covering the period 2017-2021. As stated by the European Commission (2020) «digital literacy is a must, the more so in a post-Covid-19 world. Practically all further learning, and jobs in all sectors, will require some form of digital skill, yet on average two in five Europeans aged 16-74 are lacking these skills». The European Commission has set targets in the European skills agenda and the digital education action plan to ensure that 70% of adults have basic digital skills by 2025. These initiatives aim to reduce the level of 13–14-year-olds who underperform in computing and digital literacy from 30% (2019) to 15% in 2030. In particular, through the "Digital Education Action Plan - Resetting education and training for the digital age", the European Commission aims to promote quality, inclusive and accessible digital education in Europe. To achieve these goals, two

strategic priorities are defined: on the one hand, fostering the development of a high-performing digital education ecosystem and on the other, enhancing digital skills and competence for the digital transformation. As a priority, the Commission intends to take several initiatives focused on online and distance learning at all levels of education and training, both supporting digital transformation and encouraging dialogue between member countries. The second strategic priority aims to develop basic digital skills, starting from early childhood, and to develop advanced digital skills, capable of encouraging the increase of digital specialists and ensure equal gender representation in both studies and digital careers. To facilitate the achievement of these objectives, the Commission intends to adopt different measures such as, updating the European digital skills framework (DigComp); the creation of a European Digital Skills Certificate (EDSC) recognized and used by stakeholders (governments, employers, etc.) of member countries; the creation of professional development opportunities for the staff of educational institutions for the acquisition of advanced digital skills (teachers, trainers and other staff involved in teaching). The European Commission recognizes the need and indisputable benefits of digitisation, but it is aware that the process hides pitfalls and risks increasing the digital skills gap and, consequently, further accentuating regional and social divisions in the EU. On the other hand, the skills gap also underlines the differences in education levels, largely due to the socio-economic status. Therefore, it is necessary that the potential of digital technologies becomes a real advantage for the citizens of the European Union, and this has not yet been achieved. A strong digital economy powered by Europeans with digital skills is vital for innovation, growth, jobs and European competitiveness (Carlisle *et al.*, 2021). The spread of digital technologies is having a massive impact on both economy and society. Member States, business, training providers, the European

Commission and other organisations need to work together to tackle this digital skills gap.

2. Digital Competence for Young People

It is a given that young people across the world have a much higher level of education regarding digital skills and competence. That is a natural outcome, considering the rapid evolution of technology and the way the labour market has formed over the past few years.

Digital competence is very important for young people nowadays since there is hardly any job out there today that does not demand even the slightest knowledge of digital skills. Many hopes are pinned on children and young people as being a generation supposedly keen to learn about all digital things, and in need of digital skills to succeed in the 'jobs of the future' (European Commission, 2021; Kiss, 2017; OECD, 2018). Conveniently, they are also easier to reach with educational interventions than the general population (Cortesi *et al.*, 2020), facilitating gains in digital skills, benefitting real-world outcomes, and providing the means to target digital skills interventions on disadvantaged populations. However, notwithstanding governmental and other efforts to embed digital skills and literacies in the school curriculum and promote digital learning at home, it is hard to locate clear expectations, or an established evidence base that links children's digital skills with outcomes (Livingstone *et al.*, 2018), or evaluates whether expectations are met (Bulger and Davison, 2018). Although rarely specified in detail, the outcomes of gaining digital skills are mostly discussed in relation to anticipated educational or employment-related benefits, as well as online safety, digital citizenship and '21st-century skills' or 'life skills' (Buckingham, 2015; Davies and

Eynon, 2018; Livingstone *et al.*, 2019; Nascimbeni and Vosloo, 2019; Third *et al.*, 2019; Van Laar *et al.*, 2017).

Theory development is more advanced in the general population, with a notable focus on the specific and tangible outcomes of gaining digital skills (Helsper *et al.*, 2015; Van Deursen and Helsper, 2018).

By contrast with adults, where the starting point is assumed to be digital ignorance, children and young people are often assumed to be 'digital natives' (Prensky, 2001), a problematic implication being that young people will 'pick up' the digital skills they need spontaneously, without the need for resource-intensive interventions. The digital natives are "the first generations to grow up with this new technology. They have spent their entire lives surrounded by and using computers, video games, digital music players, cell phones, and all the other toys and tools of the digital age" (ivi: 3). However, the idea of digital natives has been widely debated and challenged: young people do not inherently possess the skills for safe and effective use of technologies, and skills acquired informally are likely to be incomplete. Consequently, there are serious gaps in addressing their digital skills inadequacies and providing young people with the necessary skills, knowledge and attitudes that would enable them to minimise the risks and maximise the benefits of participation in an online world. In addition, the COVID-19 pandemic has raised questions and exposed inequalities related to the availability of data to access online content, and to the availability of computers within households, which would allow young people to use the technology as a part of their formal and non-formal education. However, when it comes to the use of technology and the internet, there is a clear preference given to communication and entertainment activities, including participation in social networks, while engagement in more advanced tasks is rather limited.

Researchers had to dismantle the myth of "digital natives" by showing that not only might young people lack valuable skills, but also that they may struggle to translate these into tangible outcomes, especially in situations of socioeconomic disadvantage (Helsper and Eynon, 2010). Problematically for those promoting the digital competence agenda, research also found that the more children engage in online activities, gaining digital skills and enjoying the beneficial opportunities, the more they are likely to encounter some risk of harm (Helsper and Smahel, 2020; Livingstone *et al.*, 2017). This raises the pressing question of whether digital skills can play a role in optimising beneficial outcomes while minimising, as opposed to amplifying, harmful ones (Livingstone *et al.*, 2018).

A recently completed systematic evidence review identified the predictors and outcomes of digital competence among 12 to 17 years-old (Haddon *et al.*, 2020). This age group was selected due to its key relevance to digital skills curriculum development (European Commission, 2021; Polizzi, 2020) and to inform forthcoming longitudinal research on young people's digital competence in Europe (Haddon *et al.*, 2020). For example, there are differences in how young people from minority backgrounds engage with online tools and sources of information compared to those from non-minority backgrounds. Young people from minority backgrounds found social media and general internet searches more important for accessing (in their view) truthful information than young people from non-minority backgrounds. However, the reverse was true when considering government websites, potentially indicating a lack of trust in the system and official sources of information. Considering that many people from minority groups may see themselves as excluded or unrepresented within official or dominant narratives, this potentially indicates the importance of the proliferation of online news sources and the value they hold for

people from minority backgrounds. Young people from minority backgrounds also placed greater importance on the role of web-based sources than those from majority backgrounds when trying to overcome stressful situations, such as having relationship issues, feeling stressed or depressed and when learning how to discuss things peacefully with people who hold different opinions. This may potentially indicate that young people from minority backgrounds may have greater benefits from using online tools than young people from majority backgrounds, as digitalisation enables communication and interaction between groups that might otherwise be more isolated and disconnected. In addition, online participation tools were more important to young people from minority backgrounds than those from non-minority backgrounds for engaging in public issues. This may be explained by the idea that such tools are generally more accessible and they can be used for greater outreach. Interestingly, though, being from a minority background had no substantial effect on participants' desire to use web-based sources for career advice or to set life goals.

Moreover, the evidence review revealed many approaches to the conception and measurement of digital skills, with some researchers conceiving of multiple dimensions of digital skills while others focused on dimensions such as information literacy or computer programming. Adding to the complexity, these dimensions are inconsistently labelled, mixing digital activities (where the underlying skills are implicit but not measured, as in 'I do X online'), digital self-efficacy (typically measured as claimed confidence, as in 'I am good at X online') and digital skills (typically measured as the self-reported ability to undertake specified digital tasks, as in 'I know how to do X online') (see Helsper *et al.*, 2021).

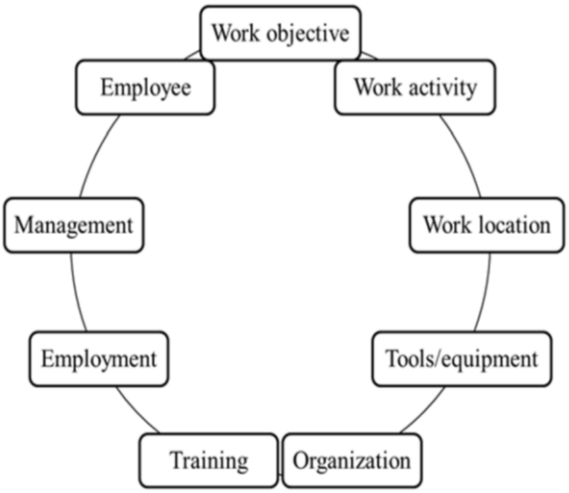
The attention to young people added some specific questions to the digital competence agenda – encompassing their motivations (Vaikutytė-Paškauskė *et al.*, 2018), or the mediating

role of parents and schools in the development of resilience to online risks of harm (O'Neill, 2013). Over the past decade, digital competence has become of growing importance among policymakers concerned with children's online safety, educators and parents alike. As discussed, research has dismantled a series of myths associated with children and the internet (the digital native, the generational digital divide, and the celebration of everyone as not only a consumer, but also as a producer of digital content). Increasingly, attention has shifted to the need for a better understanding of what makes children more vulnerable or more resilient to online risks. This shift in policy attention is evident in the evolution of the EU's policies and programmes. Along this line, one of the most notable contributions has been precisely to sustain that those risks and opportunities are correlated – the more children engage in online activities, the more likely they are to encounter some kind of risk – and, also importantly, that exposure to risk online does not necessarily translate into a harmful experience (Livingstone *et al.*, 2018). Children who are more vulnerable to the harmful consequences of online risk situations are usually those who are psychologically and socially vulnerable offline and those who have fewer digital skills. Accordingly, the main goal for academics and policymakers alike is to understand under what conditions, and for which children and young people, online opportunities can result in tangible benefits, or online risks turn into harm, and simultaneously, how to foster children's resilience to online problematic situations by reinforcing their digital competence (Livingstone *et al.*, 2018).

3. Digital Competence at Work

The digitalisation of society is one of the most critical issues of our time. This includes the world of work, where multiple changes occur because of intensified ICT diffusion, digital networking, computerisation, and intelligent or self-learning components of work systems. Following the approach suggested by Ganz and colleagues in 2019, the impact of digitalisation on work, work practices and employees can be regarded as a process that has encroached upon different areas of the workplace to varying degrees. Ganz *et al.* (2019) developed a descriptive model that can be used as a common framework of reference for shaping the changes that occur at work through digitalisation. It shows interrelated dimensions of change and thereby it indicates possible dimensions where this change process can be shaped. The model (Figure 1) contains variables that are related to the regulation of work by government, associations, trade unions and other intermediary agents – variables, in other words, that are connected not only to the place of employment, but also to general factors of employment (e.g., the form of employment, qualifications, and competence).

Figure 1: Variables of change in the workplace in the context of digital transformation



Source: Ganz et al., 2019

Job profiles can also change as a result of digitalisation. This happens when traditional aspects of a job are eliminated by technology and when others, involving perhaps an even greater focus on customer communication and development, are added. Further changes to the working environment result from a demand for greater flexibility and mobility regarding workplace location (Hacker, 2009). There are also potential changes within the dimensions of competence and leadership, where the use of technologies in the workplace provides employees with real-time support in the work process and introduces new ways of learning. These changes necessitate a healthy portion of self-management and self-motivation in the workplace. As such, employees are expected to act in a more entrepreneurial way, which can mean, in turn, that they experience a conflict between, for example, what an employer demands in terms of performance and the actual

autonomy they are granted. This poses serious challenges in the dimensions of competence and management. Changes and additions to work tasks and job profiles pose a further challenge. For example, the growing automation of tasks will result in certain tasks disappearing completely or being reduced to a merely supervisory capacity. Nevertheless, investigation into workplace innovation have shown how employee involvement has a positive impact on productivity and quality of work (European Commission, 2014). In other words, employee competence is a key factor here, as it is the precise content of the job and working hours and the working environment. All these aspects must therefore be considered when defining the job profile. Moreover, the increasing use of digital technologies favours the emergence of new value-creation networks that can also accelerate transformation in the workplace. They can lead to a new division of labour, with certain aspects of a job being outsourced, while others are delegated to the customer because of closer customer involvement. Network control of processes via mobile devices is already a feature of a host of applications. Similarly, successive penetration of work systems by smart technology and the increasing use of intelligent control software in production processes have an immediate influence on the division of labour between humans and machines (Gombolay *et al.*, 2014). More in general, the existing literature contains various scenarios sketching out the future development of technology, work organisation, and associated competences. Some scholars (Waschull *et al.*, 2020), for example, describe two opposing scenarios. In the first scenario, called the automation scenario, an ever-greater proportion of decisions are made by technology, thereby progressively limiting the scope for autonomous human decision-making and alternative forms of action. The corollary here is the emergence of a competency gap: in an increasingly automated system, humans are required to act only in the event of

a malfunction. In the second scenario, defined as the specialisation scenario, technology serves to support human decision-making and problem-solving at all levels of competence. Compared with the automation scenario, employees with at least an intermediate competence level retain responsibility for a significantly greater proportion of decisions, covering more varied – if not necessarily more demanding – tasks such as process optimisation, intervention in the event of malfunctions, and problem-solving. Additionally, other scholars (Kolade and Owoseni, 2022) describe a broad spectrum of diverging perspectives on the future of work. These range from an upgrading of competency to a polarisation of competency. The competency-upgrading scenario describes a future in which the digitalisation of the workplace entails an enhancement and/or increase in competence. This implies that employees will have to learn to operate and master new technology and that the learning process will be integrated into the working process. At the other extreme, the author describes an alternative perspective for the future of work, namely an increasing polarisation of work and competence. In this scenario, increasing automation at the intermediate competency level will eliminate tasks, resulting in a polarisation between simple, nonautomated tasks and demanding, highly qualified ones. In other words, the scenario of an increasing polarisation of competence likewise indicates the urgent need to redesign work systems and the technologies used in the workplace. However, early identification of competence and qualification requirements can serve to determine or estimate the needs of employees in those areas with an especially open and indeterminate path of development, such as those impacted by digitalisation. Identification means determining which new or modified competencies and qualifications will, with a certain degree of probability, be required over the next few years, and early means identifying those requirements when they are only

just emerging. The qualifications required for some work areas are pretty clear and they comprise a mixture of new and existing competencies (Ganz *et al.*, 2019). For those, however, where the path of development is still open and indeterminate - as a major part of the process of digitalisation – it is not yet possible to make a sufficiently clear assessment of requirements. There is a reason why this path of development remains open and indeterminate, and why there is scope for reorganising work and competence in this area: the technology that has been developed and refined in connection with the process of digital transformation does not specify any determinate model of work organisation. And organisations continue to choose different combinations of technology and work organisation depending on the stakeholder's requirements they face (Kolade and Owoseni, 2022). In other words, organisations should be paying greater attention than previously to work organisation and work design as factors that can mediate between the use of technology and the development of competence requirements. If the aim is to develop competence and therefore facilitate learning within the work process, then research must concentrate on devising new ways of learning. Promising approaches here include the creation of work systems that are conducive to learning, the adaptation of training systems to the needs of individual learners, and the utilisation of practical knowledge. As such, the principal dimension where reorganisation can have an impact is that of job profile, together with training methods and how these are technically implemented and connected with existing systems (Waschull *et al.*, 2020).

3.1 Digital Competence for Teleworkers

Today's knowledge work is supported by ICT and can be carried out from almost any location and at any time. The

independence of place has transformed the role of technology in the work environment, presenting new opportunities and challenges. Due to the displacement in the labour market from manufacturing and construction to service-based business, teleworking has been globally accepted by companies. These 'teleworkers' (also known as 'remote workers') can work independently or as part of a team in various virtual arrangements. Specifically, telework is considered a subcategory of remote work where the work carried out remotely involves the use of personal electronic devices, such as computers, tablets, or smartphones (Eurofound and the International Labour Office 2017).

Furthermore, teleworkers apply: (a) new competence sets such as technical skills to operate in a fully remote workplace, (b) problem-solving skills in an ICT-enabled working environment, and (c) social skills required for non-face-to-face interaction. Telework has suffered a huge expansion since COVID-19, where closures forced many workers to telework (Sostero *et al.*, 2020). With regard to mobility, employee mobility can improve employee productivity leading to better processes, productivity, and more satisfied employees (Newman, 2016). Teleworking is an increasing option among workers worldwide with positive effects, such as a reduction in commuting time, greater working time autonomy leading to more flexibility in terms of working time organisation, better overall work–life balance, and higher productivity. On the other hand, organisations save money while allowing workers the freedom to create their schedules and work from wherever they please (de Macêdo *et al.*, 2020; Eurofound and the International Labour Office 2017). Telework is not simply a new way of working. It establishes a new organisational form with new types of tasks, more complicated problems and different management responsibilities (Mahler, 2012). The digitalisation of work imposed by telework has underlined the importance for employees to

improve their digital competence and how existing gaps can affect their performance (Zamfir and Aldea, 2020). Previous studies (Bartolomé *et al.*, 2022) suggested that training on equipment set-up, connectivity, use at remote locations, and troubleshooting would be essential despite training being identified as a simple difficulty compared to other IT issues (Dingel and Neiman, 2020; Harmer and Pauleen, 2012; Sostero *et al.*, 2020; Vargas-Llave *et al.*, 2020). Vargas-Llave *et al.* (2020) stated that digital competence is not only crucial for accessing work, but also for self-promotion and building an online reputation to guarantee employment opportunities and expand career prospects. In the international comparison of frameworks of twenty-first-century skills carried out by Voogt and Roblin (2012), they identified retrieving and processing digital information and communicating through digital devices as two essential components of ICT competence. Moreover, Aesaert *et al.* (2014) identified retrieving and processing digital information and communicating safely and appropriately as two current topics in the national ICT curricula. As far as we know, no previous research has addressed or discussed the in-depth digital competence that is essential for anyone interested in working remotely.

4. Digital Competence for active citizenship

We participate in our communities in many ways – as neighbours, volunteers, voters, donors, members of local organisations and political activists. Democracies depend on people being willing to participate. Some participation is required (i.e. paying taxes), but democracies also depend on people's willingness to join by choice.

One of the emerging concepts in a digital society is the concept of digital citizenship (DC). Digital citizenship refers to acceptable norms of behaviour related to the use of technology (Ribble *et al.*, 2004). According to Collier (2009), digital citizenship skills form critical and ethical thinking about what has been seen, said and shared when using communication media technology. Thus, the behavioural norms of a digital citizen can protect individuals from engaging in inappropriate behaviour, online and offline, such as cybercrime and cyberbullying (Lenhart *et al.*, 2011). Skills are the ability to practise knowledge to act, and in turn, demonstrate individual competence (Schermerhorn, 2005). In addition, problem-solving uses learned knowledge theories and the ability to communicate on scientific issues (UKCES, 2011). The term, a digital citizen, applies to those with the knowledge and skills to use digital technologies efficiently, connect with others to engage in society and produce and use digital content. Digital citizenship is a confident and optimistic engagement with digital technologies. Another common definition of digital citizenship refers to promoting respectful online behaviour and civic engagement (Jones and Mitchell, 2016). Other definitions describe it as proactive engagement (Tadlaoui-Brahmi *et al.*, 2022) in the virtual world and the agency's development, i.e., a capacity to act and ensure successful integration as citizens in a digital society (Tadlaoui-Brahmi *et al.*, 2022). With the COVID-19 pandemic, digitalisation accelerated (Dwivedi *et al.*, 2020; Gabryelczyk, 2020), and institutions were often tasked with finding quick solutions in order to continue their institutional mission. Although the main reason for the increase in importance of Digital citizenship lies in the ubiquitous presence of digital tools in everyday lives and citizens, it concerns above all issues of a social and educational nature. With regard to promoting respectful behaviour online (Jones and Mitchell, 2016), psycho-emotional dimensions of

personality (Ohler, 2011) and engagement in society (Frau-Meigs *et al.*, 2017), or whether considered as a fundamental skill for mastering an evolving digital world (Ribble, 2015), the question is no longer if Digital citizenship should be embraced by institutions, but how it should be taught. In Law *et al.* (2018), Digital citizenship is structured into three curricular perspectives: digital competence, information culture and civic participation and politics. In summary, teaching Digital citizenship aims to encourage safe and healthy behaviour while fostering proactive, reflective, and respectful attitudes in online content creation and self-expression. Digital citizenship can be developed through in-school and out-of-school activities (Gleason and von Gillern, 2018). Moreover, it is interesting to observe what implementation measures are adopted when education on Digital citizenship is offered (Alonso-Ferreiro *et al.*, 2020). Several operationalisations of Digital citizenship have been formulated to describe aims, practices, or interventions (Hames *et al.*, 2019). Choi (2016) proposes four different approaches to Digital citizenship education. First, the ethical approach indicates a conception of DC as a set of basic skills needed to function in a digital society: it would be unethical to neglect to impart these skills in compulsory education, as this would be equivalent to raising citizens who are incapable of accessing critical digital resources. Second, the media literacy approach implies the development of skills to access, judge, and use information critically on the basis of a broad understanding of the media. Third, the participation/engagement approach entails that citizen are proactive users who create content to disseminate their opinions, thus contributing to online social, cultural, and economic life. Finally, the fourth approach is critical resistance, in which DC chooses the platforms for the values they promote and participate in developing an online

environment that is respectful of human rights and sensitive to every user's needs.

Another DC framework is DigComp 2.1 (Carretero *et al.*, 2017), whose broad implementation in Europe makes it an important reference. In DigComp 2.1, five areas of digital competence are defined.

Information and data literacy: browsing, searching, filtering, evaluating, and managing data, information, and digital content.

Communication and collaboration: interacting, sharing, engaging in citizenship, collaborating and communicating through digital technologies.

Digital content creation: developing, integrating, re-elaborating content, copyright and license management and programming.

Safety: protecting devices, personal data and privacy, health and well-being, and the environment.

Problem-solving: solving technical problems, identifying needs and technological responses, creatively using digital technology and identifying digital competence gaps.

The study of digital citizenship is significant to implement because most teenagers in this century do not understand the formation of explicit digital norms and culture. Research on digital citizenship is relevant because it helps policymakers and institutions to consider the trends that exist at a deeper and more substantive level. According to Yacine and Chien (2018), there still is a lack of research on digital citizenship despite the widespread development of the internet and the involvement of online community members. The digital divide can be described based on the level of digital citizenship. The use of technology in social life has created discomfort and problems that are still difficult to understand from an academic and policy perspective. Therefore,

the motivation to analyse the level of skills towards digital citizenship needs to be emphasised. Online well-being and health are identified as physical and psychological well-being in the world of digital technology. Health and well-being are linked to the fact that digital people live in virtual and physical spaces. For that reason, the necessary skills of digital competence are insufficient. Human beings also need a set of behaviour, skills, values and understanding that make them quite aware of challenges regarding health and well-being.

5. Discussion and Conclusions

Our research provides several insights into the construct of digital competence by providing an overview of its relevance at different stages of life. The large variety of approaches, perspectives and proposed frameworks confirms the interest in digital competence in many different contexts such as education, work, and society (Oberlander *et al.*, 2020). A key point that emerged from the analysis of the three different levels discussed was a requirement to press forward the debate on "what kind of society we want" and "how to create a digital transformation that reflects this". Instead of focusing on how to constrain the negative outcomes of socio-technical change, once they start manifesting themselves, policymakers and public institutions should take a more active part in directing socio-technical change. Traditionally, the policy has been directed toward dealing with the consequences, or the social implications, of technological innovation. Today, we are at a turning point. For the governance of a digitally transformed society, we should move away from a "reactive mode" and adopt a "proactive stance". With the increased pervasiveness of technology in all aspects of life, with new technologies emerging

and with the fast speed of change, it is no longer sufficient to "wait and see" where we are heading. It is time to shape where we want to be and to develop new imaginaries that foster a better digital society (ESPAS, 2019; Dutton and Graham, 2019). For instance, as discussed in the section related to young people, the focus should be on designing the future of learning and education, instead of waiting to see what will happen and being overly scared or optimistic about an individual's ability to learn and her/his approach to an ever-changing system. The first key challenge is to adopt new methodologies for foresight policy and decision-making. Under conditions of great change, estimating futures and elaborating policies cannot rely on past trends and simplistic projection forecasting. To address these limitations, Tuomi (2019) suggests a "constructivist approach to foresight". Different from other approaches, the constructivist method is based on assumptions that our capability to predict the future from the past is limited, and the future is not only predicted but created. In fact, "constructivist foresight focuses on joint creation of meaningful designs for possible futures and their experimental implementation, and it is therefore inherently action-oriented". This approach emphasises the role of different actors in creating future scenarios and acknowledges the function of human agency within technological innovation. For civic society to have a greater role in forecasting and therefore shaping the future, it must develop suitable competence (the ability to imagine the future) and adopt new methodologies. A critical issue for the governance of any society lies in its founding values: there is the need to ask critical questions about values, ethics, and social justice and to move beyond technological determinism. That means, in the first place, always enquiring "in whose interests" a certain socio-technological change is taking place. This question must be set in context across different scales, from the global, transnational and national to the

city-regional and the local. It also needs to look through the perspectives of different actors. This would imply that the present exercise embraces a distinctly European way to digital transformation. This should be guided by the European values defined in the Lisbon Treaty (2009) - respect for human dignity and human rights, freedom, democracy, equality and the rule of law. More concretely, creating sustainable public value should be a prime objective of the European way of digital transformation. Digitalisation should fuel both economic growth and social justice. The EU must harness the power of digitalisation and take advantage of the transformative potential of institutional change to increase economic growth and address important societal challenges related to the environment, public health, transportation and other pressing concerns. A debate on the future of digital transformation should also be on how to design and shape a digital society in which people and values are central. It should account for citizens' empowerment. Citizens need to be able to profit from the blessings of digital transformation and be protected against its risks (van Keulen and van Est, 2018). Government has a fundamental role in building an adequate governance system and providing administrative institutions which support citizens' data literacy and widespread participation in decision-making processes as the future of the digital society emerges. An important policy challenge comes from the urgency for action in the policy domain. Transformation is moving at speed, and policy tends to lag behind. Urgency also derives from the need to deflect and overcome the short-term impact on citizens of the socio-political turbulences augmented by digital transformation. Getting the right balance between the need to act quickly and, at the same time, establish the appropriate rules to protect the rights of citizens is one of the key policy challenges of the moment. It is not just a matter of the governance of the digital transformation; it

is about finding a way to move forward with a joint purpose to bridge the gap between the urgency to act and being able to take advantage of the digital transformation in delivering a people-centred agenda based upon European values. Given these challenges, institutions and policymakers should set out their current educational priorities to effectively respond to the changing needs of 21st-century learners. Proper acquisition of digital competence or digital literacy, understood from the holistic and emancipatory perspective, is the key to an active and functional participation in contemporary society. This challenge is just one of the relevant issues that will need to be addressed in future researches.

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