Chapter 2
From Skilled Users to Critical Citizens? Imagining and Future-Making as Part of Digital Citizenship

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Introduction

The profound digitalization of everyday environments and the deep social, political, and economic implications of this development mean there is an urgent need for not just advancing but *rethinking* digital citizenship, as well as reconsidering different actors' roles within this new order. In many societies, digital literacy already determines individuals' possibilities to effectively function as a part of society: everyday life actions such as accessing health services and using public transport are dependent on digital literacy. However, this is just one level of the ongoing transformation. More broadly, digital technology is deeply woven into everyday practices, social interactions, cultural experiences, economic transactions, and political decision-making (Manovich 2013; Williamson 2014). This results in that digital literacy, understood mainly as a set of adequate skills that help in navigating digitalized everyday environments, needs to be accompanied by notions of broader critical awareness of technologies' role in society. In this chapter, we explore one facet of this critical awareness: how the notion of *digital citizenship* could be complemented and expanded to include an *ability to imagine alternative future trajectories*.

The chapter is, above all, a theoretical essay. However, we also provide examples from our previous or ongoing empirical studies to support our arguments. The structure of the text is as follows: we first explain how the depth and breadth of ongoing digital changes motivate us to move, on a conceptual level, from *digital divide to digital inequality*, and from the *digital literacy to digital citizenship*. However, we wish to emphasize that the intention is not to argue for replacing any concept with another, but rather to refocus the discussions in order to provide an alternative,

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broader framing for the digital literacy of the twenty-first century. Second, we explain how our respective empirical studies focusing on experiences and perspectives of individuals living technologically saturated lives, have informed our understanding, and given insights on how people perceive their technological agency—or the lack of it. We continue by drawing from approaches provided by *design-oriented thinking*, especially *speculative design* and *Participatory Design (PD)* to broaden the discussions linked to digital literacy and digital citizenship towards understanding *active, participatory future-making as a means to increase technological agency and technological awareness. Finally, we provide examples from our recent empirical research to briefly introduce the challenges and possibilities of the approaches drawn from design and focusing on participatory* future-making.

From Digital Divide to Digital Inequality, and from Digital Literacy to Digital Citizenship

There exists a wealth of literature tracing how differing access to and skills in using digital technologies put people in unequal positions in society. The term *digital divide* was coined two decades ago; originally, it was a binary classification pointing to those who have access to the Internet and/or ICTs (information and communication technologies) and those who do not (e.g. Novak and Hoffmann 2000; Stiakakis et al. 2009). After the turn of the century, the term has been extended to somewhat different directions: scholars began referring to the first, second, and third level digital divide: The first level refers usually to access or connectivity, the second level includes digital literacy and skills, and the third level of digital divide describes the broader everyday life benefits and opportunities enabled by internet access and digital skills (Radovanović 2021).

Alongside the term digital divide, the use of the concept of *digital (social) inequality* has increased (e.g. DiMaggio and Hargittai 2001; Durand et al. 2021; Robinson et al. 2015, 2018). Digital inequality highlights, first of all, the ubiquitous nature of digital technology in our society and its numerous entanglements with everyday life; without adequate access, skills, and understanding of the digital realm, it can be difficult to carry out many daily tasks. Second, it effectively emphasizes how the digital realm is creating a new axis of social inequality, which is in many ways linked with the other societal and cultural constructions producing inequalities, such as age, gender, sexual orientation, education, class, and income. Those who are already affected by the conventional forms of inequalities suffer often also from digital inequality, for example, in the form of worse connectivity or weaker skills (Robinson et al. 2015, 2018). These, in turn, can result in many kinds of disadvantages such as not having access to information or education, loneliness, a worse position in labor markets, and difficulties in separating disinformation from more reliable information—just to mention a few examples.

Digital inequality can also be used as a term that reflects wider unequal relationships in society—not just between individuals but also between individuals and large technology companies or (authoritarian) governments. This shifts the focus from the social level to the societal level. The nearly ubiquitous use of digital technologies has given birth to the *data economy* in which free, often quite addictive digital services are provided to billions of people. Concurrently, the data produced through the use of those services is collected, analyzed with algorithms or AI, and sold. The users of the services are provided with explanations about the data collection and use—following also some recent legal measures, such as the *EU General Data Protection Regulation*—but they are often vague and complex, and thus, incomprehensible for most people (Lehtiniemi and Haapoja 2020; Ylipulli and Luusua 2019). Shoshana Zuboff (2015, 2019) has famously coined the term *surveillance capitalism*, which refers to a system in which people's behavior is monitored in astonishing detail by big technology corporations through digital service use, and this surveillance is monetized. To address the presented development and to reconceptualize the idea of divides in the digital society, Mark Andrejevic has introduced the notion of *Big Data Divide*. By this, he refers to the "asymmetric relationship between those who collect, store, and mine large quantities of data, and those whom the data collection targets" (Andrejevic 2014, p. 1673). The growing role of digital data has profound consequences for democracy: in this new order, data equals knowledge, and knowledge equals power, leading to a deep power asymmetry (Hintz et al. 2017). The ones holding knowledge can have control over the monitored ones, and this manipulation can be carried out in very invisible and subtle ways, by using social media bubbles, targeted news, and targeted disinformation. Public institutions can also contribute to this distortion of power relationships, either inadvertently or on purpose: It has been demonstrated that policy algorithms and predictive risk models can be very biased and discriminatory (Eubanks 2018). Deconstructing the described power asymmetry is by no means easy; for example, Andrejevic (2014) argues that the practices of data mining are dependent on storing infrastructures and analytics skills in a manner that granting access to data for ordinary citizens would not solve the problem of the Big Data Divide.

The definition of digital literacy and its relation to neighboring concepts such as digital citizenship remain nebulous, and the definitions are overlapping, competing, and often divergent (see e.g., Helsper and Eynon 2013; Nichols and Stornaiuolo 2019). Digital literacy has been largely adopted as a target in policy and in educational contexts. In one of its narrowest definitions, digital literacy is considered synonymous with the ability of individuals to participate in the economy through skills and creativity enabled by digital technologies (Klecun 2008; Littlejohn et al. 2012; digital skills in relation to multimodalities, see Radovanović et al. 2020). Such skill-oriented understanding of digital literacy is portrayed for example in the European Union's newest strategic plan titled *2030 Digital Compass: The European Way for the Digital Decade* (European Commission 2021). In this policy document, there is a call for "digitally empowered and capable citizens", but the meaning is reduced to imply a digitally skilled workforce, especially for the IT sector, consumers who trust digital products and online services, and skilled users who identify

disinformation, protect themselves from cyber threats, and know how to navigate in online environments. In other words, digital skills are framed as an obligation the citizens must fulfill in order to support economic growth—and this does not include critical thinking nor the capability to evaluate the conditions of the digital society (see also Fraser 2007; Saariketo 2013, 2015).

Although digital literacy has been defined also in broader terms to address questions of representation (whose voices are heard and not heard), language (how digital media is constructed), production (who is communicating to whom and why), and audience (how content is targeted to audiences and how people as audiences use digital media) (Buckingham 2006), the metaphor of literacy is often used as a vague synonym for competence or a skill, with a focus on mastery and operational proficiency, or evaluation and critique (Lankshear and Knobel 2011). The focus on competencies has done well in highlighting a skill set including searching and interpreting data, communicating and collaborating with others, dealing with the negative aspects of online life as well as participating effectively and meaningfully in online activities (see also, Choi and Cristol 2021; Radovanović et al. 2020). However, the emphasis on acquiring skills has consequences for what is considered the ideal of a "digitally literate" person. The competence-oriented understanding tends to idealize production skills; at the same time, it ignores the importance of understanding the social, economic, and cultural context of use of the digital technologies and does not pay sufficient attention to the need for critical thinking skills. To address the complexities of a contemporary digital environment, new literacies have been introduced, such as code literacy (Rushkoff 2010; Vee 2017), algorithmic literacy (Cotter and Reisdorf 2020; Dogruel et al. 2021), data literacy (Livingstone et al. 2020; Pangrazio and Sefton-Green 2020), and data infrastructure literacy (Gray et al. 2018). The prominent problem with these new (and endless) literacies is that they comply with the changes in the media technological environment, and thus imply an orientation towards present-day progress and innovation of technologies. The new literacies tend to prioritize users, devices, and content and simultaneously ignore questions and concerns over the co-constructedness of technology and society, as well as the technical infrastructures and socio-economic relations of living in thoroughly technologized environments (Erstad 2010; Nichols and Stornaiuolo 2019; Njenga 2018). This has meant that the definitions of digital literacy have often lacked contextualization as well as a focus on the ideology and power manifested in the design and use of technologies. Consequently, they have also bypassed the situatedness of digital realities by ignoring the experiences of the marginalized and impoverished people in different parts of the world (Choi and Cristol 2021), and the dilemmas connected to surveillance, control, and datafication in the networked environments. We suggest that (at least some of) these shortcomings could be tackled by drawing ideas and approaches from design studies and by highlighting the role of active imagining and alternative futures, as explained in more detail in the next section. In other words, we intend to expand the meaning of the term digital literacy. However, we also wish to underline the usefulness of the concept of digital citizenship.

Whereas some consider the concepts of digital literacy and digital citizenship almost synonymous (e.g. Knox and Bayne 2013), others see digital literacy as foundational for digital citizenship: literacy and implied skills of reading and writing about the digital are considered as a pre-condition for participating in the digital society and claiming digital rights (Pangrazio and Sefton-Green 2021). The terminology relying on the classical view on citizenship has been justly criticized due to its narrow and biased approach to identity and participation: it has ignored the varying forms of social inequalities, as well as their interrelation to intersectional attributes (e.g. ethnicity, gender, class, age, and sexuality), the role of situated struggles, and experiences of marginalization, oppression, and vulnerability (see also Choi and Cristol 2021). Despite these criticisms, we see benefits in approaching agency in the digital society with the notion of digital citizenship as it connects the considerations of individual micro-level agency and societal macro-level actions. We embark from the definition by Hintz and colleagues according to which digital citizenship is "*based on the possibility of comprehensive self-determination in a datafied environment, provided by secure infrastructure, an enabling regulatory environment, adequate public knowledge, and an informed use of the relevant platforms and applications*" (Hintz et al. 2019, p. 41). This definition differs from the narrower ones in the sense that it underlines the accountability of society and its various institutions. Becoming capable of making sense of the digital everyday life and acting accordingly does not just depend on the individual but society as a whole has responsibilities concerning digitalization—it is obligated to protect democracy and resist the tendencies that are strengthening social and societal inequalities. Carefully crafted ethical guidelines, new laws, and regulations are needed not only to guarantee secure infrastructure, but also sustainable, fair, and transparent infrastructures. Thus, the concept of digital citizenship captures the ontological definition of citizenship which marks the relationship to something beyond the individual—be that the community, platform, or the nation-state (McCosker et al. 2016); it emphasizes that digital citizenship is not just about civic responsibilities or self-responsibilization.

Towards Stronger Agency Instead of Enhanced Access and Skills?

In this section, we tie together some observations and reflections from our previous studies through the concept of *critical agency* by Paola Rebughini (2018). The notion of critical agency offers a fruitful conceptual basis for elaborating a more holistic approach to digital citizenship as it underlines critical thinking and reflection as affirmative creation of new practices. Rebughini's definition of the concept goes beyond understanding agency solely as the capacity of a subject to act in an autonomous way. She brings forth the ideas of dissident, innovative, imaginative, and transformative aspects of agencies that orient "against and beyond what is

perceived as unjust, unequal, [and] unacceptable" (Rebughini 2018, p. 3). We embrace Rebughini's idea of critical agency as a capacity to innovate and produce new practices and imaginaries of alternative futures that bypass (and not only unmask) constraints and mechanisms of contemporary (digital) society. Further, we introduce approaches from the design studies that can promote the construction of critical agency through participatory actions.

Our first empirically embedded notions on agency are from a qualitative study carried out by the first author of this article roughly 10 years ago, in 2011–2012, in which young adult study participants (n = 48, aged 20–30 years) were studied in order to find out (1) how they use digital technologies, especially ICTs, in their everyday lives, (2) how they experience their current use and the role of technology, and (3) what kind of dreams and fears they have concerning the future technology (Ylipulli 2015a, b). The results pertaining to the last part indicate that the need to focus on enhancing people's agency over technologies is not just a creation of experts but the same is expressed also by "lay" people, living technologically saturated lives. A significant part of the studied young adults described their dream technology with expressions and imagery connected to *nature, naturalness, calmness,* and *unobtrusiveness*. However, they did not wish that technology would be an invisible helper that is automatically performing tasks for them, like in many prevailing technology visions, such as *ubiquitous computing* or *context-aware computing* (Reeves 2012). Rather, they hoped to stay in control and use technology in a controlled manner. Some participants also directly stressed that there is a need for *critical reflection*, and stated that people should realize the role technology actually plays in their lives. They were argumenting that only this type of awareness would, in turn, enable them to "fuse technology in their lives calmly" (female participant, aged 26). A more detailed analysis is presented in Ylipulli (2015a), and to summarize, the studied young adults clearly sought to *keep their agency* and not transfer it to computers. Interestingly, also a need to better understand the various impacts of technology on everyday life surfaced in the study repeatedly.

In her dissertation, the second author studied how the imaginaries of one's agency and the agency of others are constructed and stabilized in thoroughly digitalized everyday life (Saariketo 2020). The question was tightly related to the question of contemporary societal power structures and arrangements, and how their production, reproduction, and contestation intertwine with the processes of constructing imaginaries of agency. The findings indicated that many of the 33 research participants experienced deep feelings of helplessness, frustration, and a resigned sense of agency in relation to their digital everyday life (anonymized; see also Andrejevic 2014; Markham 2021). This resigned sense of agency is supported, and partly constructed, in the interpellations to the agency by the administration-political discourse and mediated pre-domestication of new technology. In these dominant discourses, citizens are persuaded to adopt a form of agency that promotes increased consumption, economic growth, and simultaneously reduces criticism of the (infrastructural) conditions of digital everyday life. These rather narrow roles of agency offered to people introduce technological development and the embedded values of technology as taken-for-granted, contributing to the condition in which questions of

the costs of connectivity and its infrastructural nature are pushed to the background and disappear from sight. Despite the sporadic negotiations and dissonances that surface in the empirical research data, it seems that many people have grown accustomed to the notion that they have very little or no opportunity to influence the structural conditions of their digital environments. Thus, visions that could challenge or radically alter the sociotechnical forces that currently condition agency remain in the margins. This underlines an urgent need to imagine alternatives and support people's sense of agency in a manner that lets people imagine what kind of technology they want to live with and create space to act alongside these visions.

We argue the above-presented observations from both studies point towards a focal point of digital citizenship: we must find ways to enhance people's agency by fostering competencies related to *imagining alternative futures*. Our own understanding of this approach arises from the field of design, and we perceive it as an awareness of the contingent nature of the future, and as practices of using imagination and creativity consciously in different processes and activities related to the future, with the help of various techniques and tools. Imagining alternative futures is closely related to *futures thinking,* a term often used in Future Studies and strategy work, which has also recently found its way into pedagogical contexts (e.g. Häggström and Schmidt 2021; Levrini et al. 2019; Rasa et al. 2022). In the following, we introduce two approaches from the field of design that offer beneficial perspectives for active and conscious future-making: *Participatory Design* (PD) and *speculative design*.

In design research focused on new technologies and in related fields, such as human-computer interaction (HCI), there is a wealth of literature concerning technology users' empowerment and strengthening of agency. The Scandinavian tradition of Participatory Design is perhaps most explicitly anchored in empowering technology users (e.g. Björgvinsson et al. 2010, 2012). The aim of a PD process is usually to create a technological concept or an artifact through multi-stakeholder collaboration in which the so-called end-users have a significant role. Originally, when computer systems were designed mainly for work environments, the intention was to empower workers. Since those early years, computers have spread to almost all areas of life, and thus also PD is nowadays practiced within different contexts and with different kinds of groups of people. Blomberg and Karasti (2012) list the central principles of PD as follows: The participants must respect different kinds of knowledge; the process must offer opportunities for mutual learning, joint negotiation of project goals, as well as tools and processes to facilitate design. It is important to note that the goal of the design process is not only the designed product: *It is also of crucial importance that through processes of mutual learning participants gain insights into design processes, begin to understand the impacts of technology, and realize they have a choice* (Ylipulli et al. 2017). These principles are already combined with educational aims through work that focuses on fabrication laboratories (fablabs) and enhancing children's making and design skills in school contexts (e.g. Iivari and Kinnula 2018).

In addition to PD, we find the perspective offered by *speculative design* important. Speculative design is one of the somewhat rebellious branches of design

research, part of a broader discourse of *critical design* born in the 1990s. Anne Galloway (2013) comments that criticality in critical design is framed in a way that makes it actually feel familiar to social scientists: design work is understood as a cultural commentary, not necessarily as a functional prototype. The intention is to ask questions rather than give answers. During recent years, approaches related to speculative design have gained traction. Anthony Dunne and Fiona Raby (2013), the well-known proponents of speculative design, state that *"This form of design thrives on imagination and aims to open up new perspectives on what is sometimes called wicked problems, to create spaces for discussion and debate about alternative ways of being, and to inspire and encourage people's imaginations to flow freely. Design speculations can act as a catalyst for collectively redefining our relationship with reality*." Speculative design comes in many forms: it can be an object, a website, a fictional narrative, or a process that does not result in an artifact of any kind (Blythe 2014; Earth 2050; Ylipulli et al. 2016). What is common for all these approaches is to address the current reality by imagining alternatives. The speculative design has been criticized for being elitist and confined to galleries and universities (e.g. Mazé 2016). However, the more recent trends in the field argue for combining *participatory approaches to design* with speculative approaches which enables imagining new futures together with a more diverse group of participants (Baumann et al. 2018; Lyckvi et al. 2018; Rüller et al. 2022).

These approaches, and especially their intersections, can provide fresh viewpoints for understanding criticality and active imagining of alternative future trajectories as part of digital citizenship. They are echoing the notions presented by Rebughini (2018); these designerly approaches can foster imaginative and transformative aspects of the agency. They are also highly flexible and can work in different kinds of contexts and with different groups of people. In addition, design is a very practice-oriented field, and thus, it offers us numerous detailed, practical methods to be utilized and applied in activities, events, and education connected to emerging technologies and digitalizing society.

Strengthening Technological Agency by Creating Opportunities for Participatory Imagining of Alternative Futures

Understanding active imagining and future-making as a part of digital citizenship is exemplified below through more recent empirical studies we have conducted, and in which we have drawn from PD and speculative design. The studies have been carried out in different contexts and with different collaborators, underlining the flexibility of the suggested approaches and also highlighting our intention to democratize future-making activities. Our scope is not limited to conventional educational contexts but we stress that people of all ages should have the possibility to become "digital citizens". This means that there should be an emphasis on lifelong learning

possibilities, but at the same time, it points towards structural and paradigmatic changes not just in formal education, but also in how we design technologies and what kind of roles and responsibilities are assigned to powerful institutional and commercial players of digitalization.

The first empirical study we briefly present is actually not a singular study, but a long-term collaboration process unofficially titled *the Virtual Reality Library,* carried out jointly by a network of public libraries from five different cities and two different universities in Finland. The process started already in 2016 when Oulu City Library and the University of Oulu began to collaborate in Northern Finland and has since expanded to cover all the libraries in the capital region as well as Aalto University. The experimentation with VR has received funding from several different sources, and at the time of writing this chapter, it is still ongoing. The concrete aim of the process has been to produce a functional Virtual Reality (VR) application for the use of libraries. In Finland, public libraries are relatively well-funded and respected institutions (Vakkari and Serola 2012), and they are given a rather central educational role in society: the current legislation, the *Public Libraries Act*, defines libraries as sites that should provide people means to participate in different societal discussions as active citizens. Education is understood as an enabler of active citizenship and it is also seen as a prerequisite for all action. This educational objective also includes an obligation to educate citizens about new technologies. Currently, especially the large libraries of the metropolitan region are well equipped for this mission having an impressive infrastructure as well as a variety of events and courses related to new technology (Ylipulli and Luusua 2019).

The *Virtual Reality Library* process is based on applying Participatory Design and speculative design in a real-world context, resulting in a functional artifact but also a mutual learning process. The design and development have followed the principles of PD in the sense that library staff members have been participating continuously from the beginning: They have been shaping the aims of the project as well as defining the visual appearance and functionalities of the application. Furthermore, library patrons of different ages have been part of the design process through five multi-stakeholder workshops and two sets of user tests conducted during the research and design work (Pouke et al. 2018; Ylipulli et al. 2020). Speculative design and imagining alternative futures were used in the workshops where we intended to foster participants' creativity by using fiction as a source and also so-called *creative metaphors* as a method (Ylipulli et al. 2017). At the time of writing this Chapter, the process has resulted in a multi-purpose VR application that can be used with Oculus Quest headset and controllers, and which is offered for all the public libraries in the country for free. The application consists of three different virtual environments presenting different forests where the user can just move around or play a game consisting of different tasks, such as archery, and collect and arrange literary quotes (Figs. 2.1 and 2.2).

One of the main aims behind creating a VR application tailored for public libraries is to provide them with a tool for media and technology education. Using PD combined with speculative design as an approach resulted in an application that libraries actually find usable, which is aligned with their mission and societal tasks,

Figs. 2.1 and 2.2 In the Virtual Reality Library, the user can wander through environments representing different kinds of forests, from a cartoonish winter forest to a more realistic one resembling a Finnish forest. The environments are based on the design participants' ideas. (Images: Center for Ubiquitous Computing, University of Oulu)

and which is based on creative ideas created by library staff and library patrons themselves (Fig. 2.3). The process itself offered opportunities for learning about (1) VR technology, (2) the technology design process, and (3) future-oriented (design) thinking. Furthermore, the participants of the process were able to experience how their abstract and even wild imaginings were turned into a concrete technological application from scratch. Of course, these possibilities that can potentially orient the participants towards a more active future-making and strengthen their agency were available only for a limited number of people, as the workshops and user test events needed to be kept relatively small. However, the libraries plan to use the application

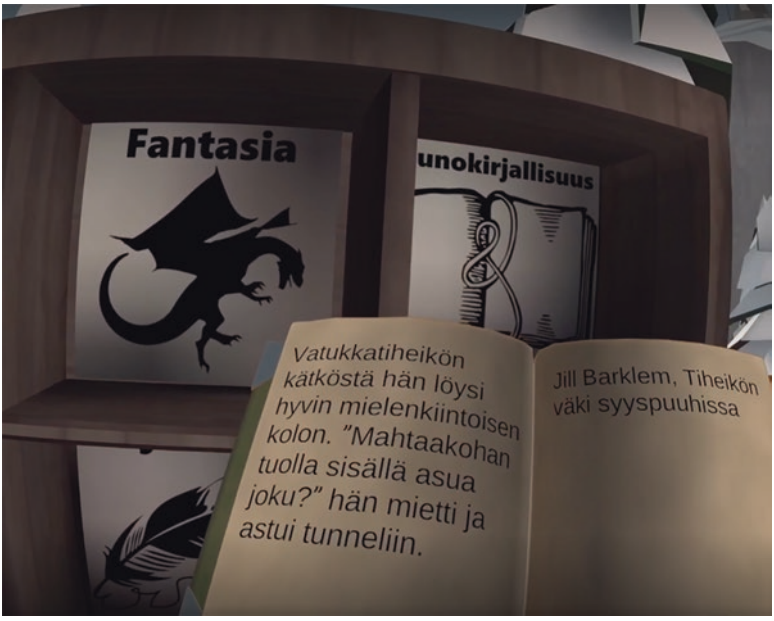

Fig. 2.3 The VR application in question is tailored for public libraries and it provides them a tool for media and technology education. The content is connected to the library context; the user can complete gamified tasks and collect literary quotes from a magical book. The quote is from the Finnish translation of Jill Barklem's children's book *Autumn Story* (1980). (Image: Center for Ubiquitous Computing, University of Oulu)

with different kinds of groups (young people with refugee backgrounds, the elderlies) to enhance their understanding of the new media and technology. It can be used and played as it is, or it can be complemented with new virtual objects or complete VR environments as the code is open. Thus, the libraries can continue designing the application and related practices further.

The process is an example of a participatory, speculative future-making activity that is also scalable. We are currently conducting post-design process interviews with the main stakeholders, but we have not specifically studied whether the participants experienced their participation as empowering and did it transform their ideas about the future. However, this is indicated in the literature (Hansen et al. 2019). Further, we do not know the broader impact of the process yet, as the libraries are currently appropriating the VR application.

Our second case study is a project called *Young people imagining alternative media(ted) futures,* which focused on studying what kind of mediated everyday life young people would like to have. The starting point was the observation that it is very difficult to take critical distance from and to envision alternatives to, the ways things "normally" are in the thoroughly networked everyday life (Saariketo 2020; Markham 2021). The study focused on young people as it was contended that the taken-for-grantedness is particularly pronounced within an age group that has grown

surrounded by the ubiquity of digital technologies. It was also acknowledged that the future concerns young people in a particular manner, but they are usually not heard in discussions about the future.

During the one-year project (2020–2021), an *Imagining Workshop* model titled *Media/The Everyday Life 2030* was developed. To facilitate designing the workshop, we conducted an online survey ($n = 436$) with young people to serve as background material. The aim of the workshop was to enable the young participants aged 14–18 ($n = 24$) to distance themselves from the self-evident aspects of their mediated everyday life and encourage them to imagine jointly alternative mediated futures. In the online workshop, the participants worked in small teams, and with the help of different methods such as character creation and shuffled cards, the participants imagined little scenes happening in the future, in 2030. The cards helped them to imagine changes in the media environment and related moods.

The young participants felt that they were heard during the workshops. The playing cards gave space for them to express their concerns, such as environmental issues, dataveillance, fake news, oppression, and new forms of slavery, as well as online and offline harassment and hate speech. One of the biggest concerns was a fear that some of the main problems in 2021 would still be issues in 2030. A major observation from the workshops, and one that fosters hope for the future, concerns the flexibility of imagining as a joint activity. While collectively projecting alternatives to the mediated everyday life proved challenging for the participants, it sparked vibrant discussions on the bleaker aspects of the contemporary networked society. However, future empirical research needs to explore further the critical potential inherent in the collective exercise of human imaginative capacities. One challenge relating to this is that the act of imagining is rooted in the lived experiences of the past and does not necessarily result in the expression or co-production of counter-hegemonic narratives of the future. Imagination as such does not necessarily include a transformative aspect, and focus should be laid on *aspiration*—the ideas of how the future should differ from the present day (see also Appadurai 2013).

Discussion and Conclusions

To conclude, in this chaper, we have intended to demonstrate how the ubiquitous role of digital technologies in contemporary society calls for novel understandings of digital literacy. Digital technology contributes to societal inequality in numerous ways, creating divides not just between different groups of people but also between people and institutions, such as large companies and governments. Instead of focusing on individuals' digital skills and their ability to adapt to the prevailing societal reality, defined strongly by digitalization, we have framed the digital literacy of the twenty-first century as digital citizenship and explored the possibility to understand imagining and future-making as important facets of it. Digital citizenship as we understand it draws from the broad definition presented by Hintz et al. (2019) which grants the individual a "*comprehensive self-determination in a datafied*

environment" but highlights also the role of society in creating suitable conditions (Hintz et al. 2019, p. 41). This definition does not cast all the responsibility of becoming a 'proper digital citizen' on the individual. In other worlds, it is imperative that society provides opportunities for learning digital skills for people of all ages, but we argue that there needs also to be possibilities to learn critical thinking skills: how to question the prevailing developments—and how to imagine alternatives.

Although researchers in the field of digital literacy have acknowledged "*the need to imagine multiple futures*" (Njenga 2018, p. 4) and the potential in intervening "*the systems that produce them [new technologies] in order to make them more just and equitable*" (Nichols and Stornaiuolo 2019, p. 21), it has seldom been explored what this means in practice. We have drawn from the field of design studies and introduced especially Participatory Design and speculative design as potential approaches for incorporating active, participatory future-making as part of digital citizenship. These approaches can be utilized in various contexts and with various groups of people, as our two case study examples demonstrate: the first focuses on the context of public libraries, covering thus library staff and (potentially) all the library patrons, and the second was centering on adolescents and their ability to imagine alternative digital futures.

Our proposed understanding of digital citizenship goes beyond teaching people how to use and appropriate existing technologies in the digital society. Thus, it goes beyond contributing to the reproduction and stabilization of digital technology and the implied power arrangements as part of daily life. We understand digital citizenship as a fundamentally political practice that acknowledges the foundations and implications of the development and application of digital technology in our lives. There is a need to reflect upon, challenge, and resist the kind of oblivion that prevents us from seeing how things could be otherwise. With the means of active future-making approaches, we have introduced an idea of digital citizenship that opens the sociotechnical construction of digital for negotiation. It is obvious that the ideas and alternatives we have briefly introduced need to be conceptualized further, and also their potential must be studied through empirical research. One of the issues that need to be addressed in the future is the sheer complexity and black-boxed nature of digital environments which poses severe challenges (even for experts!) to understanding and knowing how digital technology works. After all, knowledge and understanding have been considered as important building blocks of citizenship in a technological society (Feenberg 2011; Isin and Ruppert 2017).

We can conclude here that the capability to reflect upon the foundations of (digital) societies does not depend on technical expertise: even without possessing detailed technological knowledge, people are capable of reflecting on what kind of society they would like to live in. We believe that curious and fearless imagination can enable awareness, reflection, challenging of, and resistance to the conditions of digital environments; it can lead us beyond the taken-for-grantedness, and thus give space for visions of alternative digital futures.

Finally, we wish to highlight that digital citizenship must include a critical approach to both discursive and material construction of technology and the

complex web of exploitation linked with digital technologies (see also Emejulu and McGregor 2019). This means awareness of the material underpinnings of digitality, including the natural resources and labor needed in producing the devices and recycling the e-waste that all have political and environmental consequences in the Global North, and especially in the Global South.

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