How Can We Understand the Everyday Digital Lives of Children and Young People?

Halla Holmarsdottir, Idunn Seland, and Christer Hyggen

Perspectives on Technological and Social Change

When we talk about digital technology, we often assume a causal relationship between the technology and certain effects on society and how we live our lives. In thinking about children and young people's use of digital technology, the idea of causality becomes augmented and, as we have often seen, paired with concerns about how this technology will

H. Holmarsdottir (✉) • I. Seland
Department of Primary and Secondary Teacher Education,
OsloMet – Oslo Metropolitan University, Oslo, Norway
e-mail: hallab@oslomet.no

C. Hyggen
NOVA–Norwegian Social Research Institute,
OsloMet – Oslo Metropolitan University, Oslo, Norway

H. Holmarsdottir et al. (eds.), *Understanding The Everyday Digital Lives of Children and Young People*, https://doi.org/10.1007/978-3-031-46929-9_1

harm the younger generation (Odgers & Jensen, 2020). This book aims to place conceptualisations of *risk* and *vulnerability* in perspective relating to children and young people's agency, therein, the use of digital technology, to understand how their well-being may not be determined but conceived and shaped in the context of their everyday digital lives. The chapters of this book are based on the research outcomes of DigiGen, a large-scale EU Horizon 2020[1] project seeking to answer *why* and *how* some children and young people benefit from the use of digital technology while others seem to be impacted negatively.

One way to restart the debate on our continuous and inevitable coexistence with digital technology is to pause for a moment at the scholarly attempts to show us that there is more than one way to think and talk about technology. Our understanding of technology, whether this is expressed in academic, political or common public debate, rests on certain theoretical perspectives of the relationship between technological and social change (Mauthner & Kazimierczak, 2018). To be conscious of these theoretical positions is to be able to question more openly what digital technology means to us as a society and especially to the younger generation. Is it dangerous? Is it beneficial? The answers to these questions will not be any less difficult or complex, but just knowing that there are different ways to grasp the role of digital technology in the context of social change may help us continue the discussion trying to improve our insight (Gibbons, 2015).

An overview of three such theoretical positions has been presented by Baym (2010). The first perspective, *technological determinism,* rests on the Marxist-materialistic principle of how the means of production disempower or empower human action. This view is commonly invoked in academic studies showing correlations between screen time and diverse health problems, for example, children and young people's sedentary behaviour. However, expectations of how digital technology may enable distance learning and democratise public debate can also be attributed to

[1] This project has received funding from the European Union's Horizon 2020 research and innovation programme under the grant agreement no. 870548. Neither the European Union nor any person acting on behalf of the Commission is responsible for how the following information is used. The views expressed in this publication are the sole responsibility of the authors and do not necessarily reflect the views of the European Commission.

technological determinism, illustrating how the firmly grounded belief that technology *does something to us* can be for both good and bad.

In opposition to technological determinism is the perspective of *social constructivism,* centring on the use of technology as a consequence of social factors unfolding in diverse contexts where people—inventors, investors and regular consumers—have differing needs, interests and resources. This focal shift onto how we construct, understand and use technology inverts the idea of a causal relationship between technology and human behaviour, placing humans first.

A third perspective on cause and effect involving digital technology is found in the idea of *social shaping*, meaning that people utilise the social capabilities that digital technologies enable while at the same time navigating, negotiating and sometimes struggling with the pitfalls and constraints. From our engagement with digital tools—among a range of other material and social factors—social practices are formed, reinforced, rejected or reworked in everyday situations. Rather than being deterministic, the perspective of social shaping of digital technology sees these processes as emergent and reliant on how technology makes sense to people, enabling or disabling our wants and needs.

We position this book within the perspective of the social shaping of digital technology. Where the current academic and political debate on children and young people's use of digital technology centres on risk and protection, including skills that are mainly based on digital literacy, we would like to take one step back and ask: How do children and young people make sense of digital technology? In what ways is digital technology meaningful to them and to the relationships they experience? By posing these questions, we do not reject problems that may stem from the use of digital technology, or that digital technology may exacerbate vulnerability which calls for protection or regulation. Rather, we use as our starting point that all humans are vulnerable, that being human embodies vulnerability in the sense that we depend on our relationships with others (Lotz, 2016). This dependence is especially dominant in children and young people, because their relationships with parents and peers are constantly evolving as childhood changes into adolescence and young adulthood.

In what Lotz (2016) terms *the vulnerability-resilience nexus*, resilience is a capacity to confront, absorb or withstand adversities and setbacks in life. Outside of the vulnerability-resilience nexus, and where both vulnerability and resilience are perceived as passive states, we find autonomy contingent on individual agency. Autonomy may be described as 'a suite of rational, affective, deliberative, and self-interpretative skills and competences that enable a person to make choices and act in line with their reflectively endorsed beliefs, values, goals, wants, and self-identity' (Lotz, 2016, p. 53). For autonomy to thrive, these internal agential competences must be supported by the right kind of social conditions, relationships and institutions, and the options, opportunities and resources available to the individual must be of decent quality and range.

Children and Young People's Use of Digital Technology: A Conceptual Model

To be able to work with the concept of children and young people as agents possessing a mixture of vulnerability, resilience and autonomy taking part in the social shaping of digital technology, we need a conceptual model that illustrates and exemplifies where and how this activity takes place. Bronfenbrenner's (1979) model of ecological systems theory (EST) has frequently been used to contextualise the life of the individual child as nested within social spheres, from the family and school through political institutions and finally cultural and ideological tendencies impacting on the child's life (Neal & Neal, 2013). The nested model of EST is one of the most widely used ways of depicting the digital ecology of children and young people (Hayes et al., 2022). It is also a foundation for some of the theoretical models in the field of children and young people in terms of technological change, for instance, in the EU kids online research (Livingstone et al., 2011; Smahel et al., 2020).

Figure 1 is a representation of Bronfenbrenner's original model of EST, where the social spheres surrounding a child are nested within each other. The child is positioned in the *family's microsystem,* but *the school* and *leisure activities* also represent such microsystems to the individual child. At

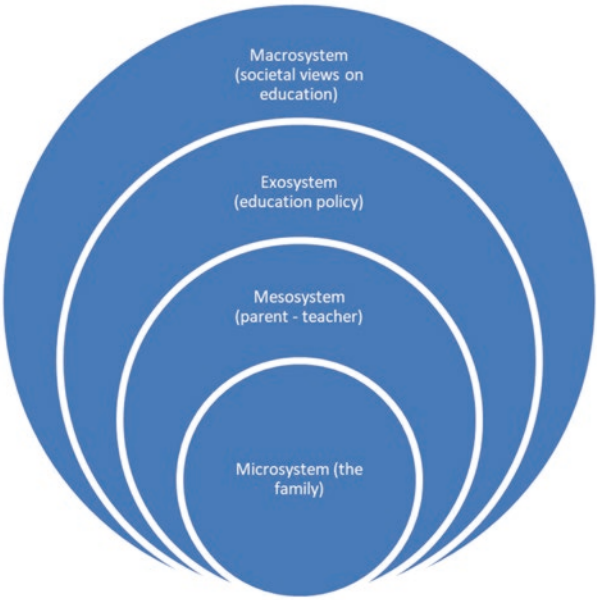

Fig. 1 Basic illustration of nested model of ecological systems surrounding a child. Note: This model is further developed from the one originally proposed by Bronfenbrenner (1979). Captions describing examples of each system are from Neal and Neal (2013, p. 725)

the *mesosystem* level, different microsystems interact, for example, through a meeting between the child's parents and her school teacher. The microsystems and the mesosystem are affected by political activities taking place at the *exosystem* level, and finally, a *macrosystem* of cultural and societal beliefs, like how we perceive and talk of *childhood* and *digital technology,* which indirectly affect all activities around the child, from the microsystem to exosystem level.

This book is motivated by curiosity about what goes on at the microsystem level in the digital ecosystems of European children and young people, including some analyses from the mesosystem and exosystem levels. However, to utilise the maximum conceptual potential of EST, Neal and Neal (2013) propose that the ecosystems should be viewed as *networked* and *overlapping* instead of nested. When we consider digital technology as an object of social shaping, the networked version of ecological

systems theory allows us to concentrate not only on where children and young people act and interact using digital technology in their daily lives but also with whom they interact. Moreover, a networked version of ecological systems theory facilitates a more detailed examination of the complex relationships between the different systems from the mesosystem to the exosystem level, as they overlap in different ways. By defining and then investigating how social relationships unfold within and across the ecological systems, the networked model also points to a methodological framework for empirical research (Neal & Neal, 2013).

The networked version of EST, first proposed by Neal and Neal (2013), has been developed for this book as illustrated in Fig. 2. Here, person A belongs to four overlapping microsystems: the family, the school, one leisure activity and a space where children and young people can participate digitally as democratic citizens. The microsystems are populated with people B–I, who are all in direct contact with person A, while some

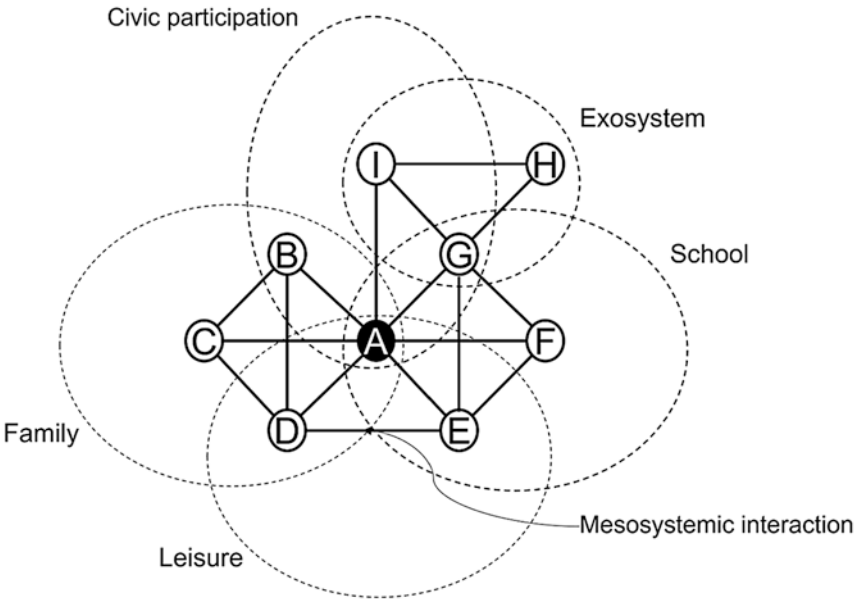

Fig. 2 Networked model of ecological systems theory, focused on person A. Note: The figure was developed based on a model by Neal and Neal (2013)

of them are also connected across the different microsystems, forming a mesosystemic interaction. Figure 2 also contains an exosystem. In the exosystem, person G, who may be a school principal located within the microsystem of the school, interacts with people (H–I) at the school board level. One of these people (person I) is here imagined to be personally acquainted with the child, for example, by being a friend of the child's parents. We can further imagine the child and this person (I) both following discussions on local issues on social media.

In the chapters of this book, the four microsystems (the family, the school, leisure activities and digital platforms for civic participation) represent central spaces for children and young people's digital agency, meaning that they *make sense* of this technology and participate in a wider community mainly through social relationships enabled by digitalisation. The network overlaps between the different microsystems of children and young people's digital participation that are also easily envisioned and addressed by the different chapters: between the family, the school and leisure, or the overlap between leisure and school when social media are applied to citizenship education. Outside the exosystem in Fig. 2, we will imagine the macrosystem with cultural and societal beliefs about *childhood*, *education*, *child rearing* and *digital technology*, enclosing and affecting all the activities taking place at microsystem-, mesosystem- and exosystemic levels.

As a conceptual model, the networked display of EST in Fig. 2 helps describe what happens with children and young people's use of digital devices and how and why these activities are performed. Capturing the multi-agentic, border-crossing qualities of the younger generation's use of digital technologies, the model also provides a bridge from previous understandings of risks, vulnerabilities and resilience to positive outcomes, like friendship, competences and social support. Rather than treating digital technologies as a particular sub-system in a nested EST model (Johnson & Puplampu, 2008), this networked understanding of EST helps us position digital technologies in relationships between actors where digital technology is contributing to making boundaries between the particular microsystems more porous, or even—in its extreme form—leading to what has been termed 'context collapse' (Vitak, 2012, p. 451).

While the chapters presented in this book were researched, the COVID-19 pandemic struck, representing a *chronosystemic* historical life event (Bronfenbrenner, 1986) affecting not only the life course of the individual child but all the digital ecosystems from the micro to the macro level. During the pandemic, digital technology use increased at home not only for working, socialising and recreation for adults but also for schooling, communication and play for children and young people (Gillian et al., 2021; Vaziri et al., 2020). Thus, the pandemic led to increased use of digital technology in all areas of society and for most individuals. Parents were working from home using digital technology, and many schools moved classes online, either temporarily or for extended periods, requiring teachers to be available beyond the regular school day. During these periods when face-to-face contact was not possible, many children and young people felt depressed and overwhelmed due to long hours of online learning and a lack of socialisation, thereby craving online communication—the only way to keep in touch with peers through online chatting and videoconferencing (Eickelmann et al., 2021; Mitra et al., 2021).

What Do We Know About Children and Young People's Use of Digital Technology

Digital technology is used in the everyday contexts surrounding children and young people. The microsystems of the family, leisure time, education and civic participation involve activities as diverse as searching the internet for information to help with schoolwork, communicating with family members, gaming with friends and classmates and voicing their opinions about political issues. In this book and based on the overall DigiGen project, the chapters aim to shed light on both the harmful versus beneficial effects of digital technology in the everyday lives of children and young people. This is achieved using participatory methodologies that focus on understanding why and how some children and young people benefit from the use of digital technology while others seem to be impacted negatively.

The Research Design

The project and subsequent chapters in this book focus on children and young people (from 5 to 18 years of age), a group growing up today that is described as the digital generation (DigiGen). Through sustained engagement with the digital generation as co-researchers and the inclusion of innovative qualitative methods, in-depth case studies and quantitative methods (secondary analysis of existing data), the cross-disciplinary team of researchers attempt to better understand how we can enhance cooperation between the family, schools and the wider community to ensure safe and productive ways of using digital technology. The authors included in this book bring children and young people's perspectives close to the readers with the help of the participatory approach taken across the project, which aims to engage children and young people as co-researchers. Interviews, focus groups, app-based diaries, gaming observations and video and storytelling workshops enhance the understanding of experiences of the digital generation in living their digital lives and reveal the meanings given by them to the process of digitalisation. In the overall project, the original qualitative data (see Table 1) includes a range of participants from seven European countries (Austria, Estonia, Germany, Greece, Norway, Romania and the United Kingdom).

While the DigiGen project was organised around and collected original qualitative data on four microsystems, we have also included research based on secondary analysis of existing quantitative data (Ayllón et al., 2020, 2023). The project's overall goal was to answer the following research question:

> *How are children and young people affected by the technological transformations in their everyday lives*?

Furthermore, the collection of qualitative data and secondary analysis of existing quantitative data were based on a set of more focused research questions for each microsystem or bridging these microsystems. In the next section, we will present each of these research questions along with a brief overview of some of the results. The subsequent chapters in this book provide deeper insights into the research results based on further data analysis.

Table 1 DigiGen original qualitative data

	Children and young people (CYP)						Adults				
Empirical data	Age group 5-6	Age group 8-10	Age group 9-16	Age group 10-15	Age group 15-18+	Total CYP	Parents	Teacher candidates	Teachers	National stakeholders	Total Adults
Family interviews (individual interviews)	29	30				59	65				65
Focus groups	79	97				176					
Interviews				85		85					
Game observations				22		22					
App diaries				50		50					
Interviews Pilot study			26			26				4	4
Interviews			43			43			37	14	51
Interviews video workshop			50			50		21			21
Netnography interviews					65	65					
Focus group interviews					12	12					
Total	108	127	119	157	77	588	65	21	37	18	141

Brief Results from the Overall Study

In DigiGen, the secondary analysis of existing quantitative data aimed to address the following research question: *How diverse is the European Union in terms of ICT usage among children and young people and to what extent does access to ICT depend on age, gender and socio-economic background*? Our secondary analysis was conducted during the initial period of the COVID-19 pandemic. The pandemic reinforced our understanding of the need for an Internet connection and technological devices in Europe and globally, especially among school-aged children. For many children and young people, access to a connected computer, both during and after the COVID pandemic lockdowns, makes the difference between being able to keep up with their educational development and falling badly behind. In our analysis of the latest available wave of the European Union-Statistics on Income and Living Conditions (EU-SILC), we found that 5.3% of school-aged children in Europe are digitally deprived and that differences are large across countries (Ayllón et al., 2023). Children that cohabitate with low-educated parents, live in poverty or severe material deprivation are the most affected. This helps to show that digital inequality—or, more specifically, the digital divide—with a focus on access (the *first-level* digital divide) has not been resolved (Helsper, 2021; Paus-Hasebrink et al., 2019; van Deursen & Helsper, 2015). Thus, the pandemic has shown us that the assumption that 'now everybody has access to and can use the Internet' (van Deursen et al., 2011, p. 126) is inaccurate; instead, it has served to demonstrate that children and young people still face inequalities in access, leading to digital exclusion—or what we call digital deprivation (Ayllón et al., 2020, 2023).

Moving beyond access, we wanted to understand how *the everyday lives of European families are shaped by technological transformations*. We were interested to know more about how children ages 5–6 and 8–10 use digital technology, and how they assess its relevance in their everyday lives and their general experiences. Our data confirm that most children live with ubiquitous technology that permeates the fabric of their everyday family life. Digital technology allows them to keep in contact with distant family members such as grandparents who may live in other

countries or with parents who travel for work. Children who live in a single-parent household sometimes receive a smartphone earlier than their peers as this device can help to keep in touch with the other parent, and divorced parents find it useful to have a smartphone to share calendars and organise family life. Parental mediation appears to be still an important factor in contributing to children's digital competence, with restrictive parental mediation where screen time is a major focus, and less on the content means that children have fewer experiences, which can limit their digital competence and as a result reduce their resilience when challenges arise. When children are supported in their use of technology, either through co-use activities or supportive dialogue, their confidence in the use of digital technology is enhanced and their digital competence seems to be increased (Kapella et al., 2022).

While most families have rules, either developed with children or by adults only, children find ways to challenge these rules. For instance, age limits can be broken when older siblings let younger siblings watch them while gaming or by finding ways to unlock parental controls 'if my dad can Google how to put on the parent control, then I can Google how to remove it' (CYP age 9). What is even more interesting is how children view their parents' knowledge when it comes to digital technology.

> Many parents don't know that much about Roblox and they don't know why it's our favourite. There are a billion games and if parents say no to a game due to the age limit then you can just go on Roblox and you can play what you want like GTA [Grand Theft Auto]. I don't think they know about that (CYP age 9).

While the microsystem of the family provides some glimpses into the leisure time activities of children and young people, it does not cover all issues relating to children and young people's leisure time. In our research, we were concerned with understanding the time children and young people spend with their peers and others they interact with in more unstructured activities such as gaming or the kinds of applications they may have access to and use. More specifically, we wanted to uncover *how everyday practices linked to leisure time are transformed through the use of digital technology* and *how can social interactions and social skills acquisition*

can be enhanced through this use. What was clear from this microsystem is that the smartphone is an important device for children and young people. Thus, having a smartphone becomes an important marker of digital capital and getting one's first smartphone is a milestone event in their life (Parsanoglou et al., 2022). Digital devices are used daily as a source of communication and for gaming. Communication with friends through chats, calls or apps happens daily and can include exchanging information about the school or doing homework, arranging times to meet, hanging out or even sharing news. What is clear from the research is that children and young people make use of a range of applications for several activities, including communication, gaming/playing together, school/learning and entertainment.

Leisure time also includes important activities such as gaming with friends and even strangers. Children and young people shared with us that when they game with strangers, they have a kind of code of conduct which differs from gaming with friends. Thus, when strangers are included, the communication is restricted to non-personal information as opposed to when friends game, where the discussion is more open and can include personal information. What is clear is that gaming has a strong socialisation aspect and was important in maintaining friendships both during the COVID pandemic lockdowns and after.

The research in this microsystem revealed that safety and privacy are important for children and young people and that they take these issues seriously. Threats against them do not necessarily come from other users, for example, strangers chatting over social media or game platforms, but there is also a kind of mistrust of online platforms as untransparent technological institutions (Parsanoglou et al., 2022). This is one of the reasons that most of the participants avoid sharing personal material, such as photos and videos, or any other kind of personal data and even personal thoughts, opinions or ideas. It is clear that some of the messages they receive either from home or in school seem to be heard and incorporated into their everyday digital practices.

In focusing on education, we asked the following research question: *How do young children regard their education in terms of preparing them for adult life in the digital age digital age?*

A focus on the education microsystem shows that unequal access to digital technology in schools within and across the participating countries presents a challenge for children, young people and their teachers. With a lack of sufficient or limited access to digital technology, children and young people may be left behind in their education and are less likely to develop the same level of digital competence as some of their peers, who may have sufficient access at home and in school. A variation in digital competence among teachers leads to further challenges in developing digital competence and preparing the digital generation for their future lives in an ever-increasing digital world. Teachers with limited digital competence may hesitate to use digital technology in the classroom.

In some cases, teachers admitted that they 'avoid it as it takes too much time' (Grade 7 teacher). The hesitation in harnessing the potential of digital technology can reduce time spent in school learning about important matters such as data protection, digital responsibility and developing critical data literacy. In our interviews with children and young people, they point to some of the shortcomings of teachers, which for them may have wider consequences.

> Teachers are often not on social media, and if they want to have a lesson about being bullied, they do not know how it is to be bullied on social media, and they think it only happens at school. The explanations from teachers are just like 'be nice to each other', but they do not understand (CYP age 12)

Furthermore, we believe that it is also crucial to understand how education and society, in general, can enable children and young people to manage and be resilient to challenges surrounding issues such as safety, health, cyberbullying and misinformation (fake news) while being aware of their rights in the digital world as digital citizens. More specifically, we aimed to uncover *what are the socio-economic, gendered and political culture-related factors affecting the digital political engagement of young people* (those above the age of 16). Our understanding of digital citizenship consists of 'the civil, political and social rights of a citizen in their online activities, their political engagement and action through digital means and their membership of an online community that is a distinct source of

identity' (Reynolds & Scott, 2016, p. 19). We have included in our research a focus on young people's civic participation as part of being digital citizens. What is clear from the research is that young people use digital technology to speak out for marginalised groups in society, fight for the environment, for equal rights and something that is a matter of social responsibility as a citizen in general. For young people, using, for instance, social media to speak out and work towards improving society contributes to being informed and changing their way of thinking.

However, some young people shared with us a distrust of traditional political parties through their online civic participation. For these young people, it is not so much about changing the world as it is about changing the everyday life around them. What we do see in our research is a blend of social media-savvy young people and those who are less knowledgeable in the use of social media, but who still make use of a range of platforms to convey their messages. These messages are shared through, for instance, Facebook, Instagram, Twitter, YouTube, Reddit, VKontakte and Tiktok, with participants in some contexts not preoccupied with questions of surveillance and taking no extra steps to protect themselves while others make use of messaging apps as well as video conferencing platforms. Among these young people, there is reluctance, distrust and criticism towards platforms and apps and a preference for open-source software. Digital networks are seen more as means of (counter)information diffusion and less as a meaningful space where political strategies can be deployed. Furthermore, some youth use carbon-neutral or carbon-negative clouds and use platforms such as Basecamp and while young people tend not to use Facebook, they will use it if they want to reach parents or other adults. This underscores the fact that children and young people are not often using the same platforms as adults, but at the same time, they can make use of these as needed depending on their objectives.

Structure of the Book

The book is structured using the investigative ambition of a research project as a framework. This entails a background section to present the main problems addressed in existing research concerning children and young

people's use of digital technology and how the conceptual model developed in the DigiGen project (please see Fig. 2) represents a new approach to studying the same problems. The main point in this section, as throughout the book, involves children and young people's voices to centre the analysis on their motives, agency and social relationships, notably without downplaying problematic aspects deriving from digital technologies in their lives. The section thus starts with Ayllón and colleagues, who combine data from PISA and rich comparative qualitative data to document the extent to which school-aged children in Europe are digitally disengaged and digitally unconfident, revealing substantial differences between children and young people growing up in different parts of Europe. By shedding light on these challenges, this research can inform policies and interventions aimed at ensuring equitable access and success in digital learning environments.

This introduction to the main structural and socio-economic problems of access to and use of digital technology is followed by a focus on risk and vulnerability by Holmarsdottir. This chapter aims to contribute to a more precise understanding of vulnerability and risk and what it means for children and young people to be vulnerable or at risk in their everyday digital lives. The goal is to provide a theoretical contribution to this book where understanding vulnerability and risk is seen as necessary. Recognising that different forms of vulnerability can interact with different risk categories simultaneously and in multiple ways is crucial. The chapter's main argument is that both risk and vulnerability are only partly understood within the digital divide literature and that there is a need to consider the crucial role played by the various ecosystems surrounding children and young people to get the complete picture of how risk and vulnerability are manifested.

Following the description of the concerns around risk and vulnerability as related to children and young people's use of digital technology, Holmarsdottir et al. present the book's novel approach to this research by taking a closer look at how the affordances of digital technology enable children and young people to participate and take agency in a world that reaches outside the limitations of their physical one. Building on Bronfenbrenner's (1979) nested ecological systems theory and Neal and Neal's (2013) networked ecological systems, these authors explore how

children's digital interactions contribute to constructing new mesosystems, beyond the ones predefined by their *physical/everyday/tangible* microsystems. This chapter demonstrates how the networked model (see Fig. 2), inspired by Neal and Neal (2013), may be used in empirical research.

From this presentation of the background and overarching approach to this book's empirical research, the following two chapters focus on participatory methods. In understanding the impact of technology on the everyday lives of children and young people as a target group, it is equally important to include them in the research process. The use of participatory methodologies allows researchers to move from research *on* children and young people to research *with* children and young people as co-researchers, co-creators and co-designers. This is demonstrated in the chapter by Symeonaki et al., who offer an exploration of the methodological potentials, challenges and possible pitfalls associated with conducting multimodal research on patterns of digital socialisation during leisure time while focusing on the involvement of children as co-researchers and active participants. The methods and approaches are analytically evaluated to deliver suggestions for practices that can be adopted in having children and young people play an active part through research implementation. In their chapter, the authors suggest using semantic integration to bridge the gap between the different modalities and extract a more comprehensive understanding of the collected data. The use of participatory methods is also in focus in the chapter by Labusch et al., who analyse how children and young people were actively involved in a video workshop approach as part of the participatory research design used in their study in Estonia, Germany, Greece, Norway and Romania. One of the tasks for children and young people in their study was to develop an interview guide and use this to interview their peers. Their research results help to highlight the relevance and potential of video workshops for future research while underlining the importance of involving children and young people in the research process and using children and young people's knowledge to supplement traditional approaches.

The book's middle part contains novel empirical research from within and across the microsystems described in this chapter as *family*, *leisure*,

education and a digital space for *civic participation*. The contributions are thus organised by the four microsystems and based on the respondents' age. This means we start with the youngest children and their experiences of digital technology in the family and close relations with their parents. This section starts with a chapter by Roth et al. on digital vulnerability and agency, focusing on children aged 8–10. In this chapter, the researchers analyse children's interactions with digital technology from a familial-ecological developmental perspective. The main aim of this chapter is to point to the general, categorical, situational and individual vulnerabilities and reflections on children's and their caretakers' accounts.

Bridging the microsystem of the family and young children's leisure time, this section then moves to the chapter by Wilhelmsen and Lafton, who contribute to an understanding of children's culture connected to digital technology, drawing on qualitative data from focus group interviews with Norwegian children aged 8–10. Applying a discursive approach, the authors explore how children present their culture as gendered when talking together and with the researchers. The authors discuss if different expectations according to gender can be linked to girls not exploiting the learning potential of technology in the same way as boys do and whether boys do not have the same opportunities as girls to come to their parents with their negative online experiences.

Staying between the microsystems of family and leisure, Rustad et al. explore the meanings that children and young people attribute to their digital leisure activities in Austria, Greece, Norway, Romania and the United Kingdom. The authors investigate from the perspective of children and young people how digital leisure activities, such as gaming and activities related to social media, are negotiated within families. The latter extends beyond merely negotiating screen time and content and instead encompasses children and young people's perceptions of their parents' perspectives on their digital leisure activities. This is followed by a third chapter focussing solely on the leisure time by Ayllón et al., where the authors use data from the Children's Worlds survey to explore how the use of ICT affects children's subjective well-being in Europe and to see whether the use of ICT crowds out other activities in their everyday lives.

Moving on to the microsystem of education, Eickelmann and colleagues develop in their chapter an understanding of how well education

is preparing children and young people for their future lives in the digital age. This in-depth qualitative study in Germany, Norway, Estonia, Greece and Romania explores children and young people from three different age groups and their attitudes and perspectives on the use of digital technologies in education. The chapter sheds light on how children and young people evaluate their teachers and schools, and the capacity and readiness to support them in preparing for their future in the digital world, where clear differences between countries and age groups are discernible.

The chapter by Tiidenberg et al. moves the focus from education to civic participation by exploring how social media may work as a shaper, enabler and hurdle in the political participation of politically active youth aged 16–18 in Estonia, Greece and the United Kingdom. These authors draw on thematic analysis of a large dataset of qualitative interviews and ethnographic social media observations to offer key observations on why youth engage and how they participate in new social movements towards racial justice, gender and LGBTQ and climate justice regarding their use of digital technology. The chapter highlights the entanglement of young people's participatory repertoires with social media, but also with their leisure and school lives and family relationships.

Following the theme of civic participation, the chapter by Gudmundsottir et al. uses the term *digital responsibility* to highlight the active dimension of the ethical-/moral-, attitudinal- and legal aspects of cyber ethics in children's and young people's actions and understanding of digital technology. Drawing on interview data from Estonia, Norway and Romania, issues such as online identity, integrity, interactions, critical evaluation of online content, copyright concerns, digital citizenship, rights and participation are investigated. The study discusses the necessity of developing digital responsibility as a means to navigate the intricate complexities and risks posed by digital technology.

The final chapter in this section by Seland synthesises literature reviews on children and young people's use of digital technology within each of the microsystems described by the other chapters to investigate how perceived excessive use of digital technology in one microsystem may increase the individual's well-being in another microsystem. Mainly, the synthesis supports previous research suggesting that digital engagement can be a

coping strategy for young people experiencing problems. Young people's use of digital technology across social contexts may affect their predefined roles as children or students, to reveal new possibilities for development and learning. The chapter thus demonstrates the *floating* or seamless character of use that constitutes a holistic view of the integration of social practice and digital technology.

To bring the book to a close, the final section provides a policy angle on improving and securing the digital lives of children and young people. The first chapter in this final section by Barbuta and Roth employs a scoping review methodology to explore the available data on toolkits designed to foster children's digital competence, promote their digital inclusion and assess the effectiveness of these toolkits. The objectives of the chapter aim to identify gaps in knowledge, clarify definitions and concepts and examine whether the identified toolkits are grounded in research or not. Given the need for children and young to navigate the risks and opportunities of digital technology, it is crucial to provide them with digital education that enables innovative and creative use of digital technology. In the book's final chapter, Shorey analyses EU digital and social inequalities and rights-based policies from the last decade to explore how policies are evolving to further reflect how digital technologies are embedded in children's everyday realities. The author concludes that the more integrated digital technologies become in children's lives, the more key it is that policymakers take a social inequalities approach to ensure that the digital environment acts as a venue for children's rights and not a point of further division.

As presented in several chapters of the book, despite growing up in a world dominated by technology, not all children and young people can fully enjoy the benefits of digital technologies, either for educational purposes or vocational development, and even less for critically evaluating the information on social media. Observing the inherent nature of digital technology to generate both risks and opportunities for children and young people, families, institutions and societies all try to regulate children's digital world, looking to make it safer.

The governing principles of child rights in the digital world, incorporated in the recent General Comment No. 25 (2021) (Committee on the Rights of the Child, 2021) on children's rights concerning the digital

environment, constitute relevant guidelines for protecting and fulfilling children's rights in the digital environment, without limiting digital technology's potential for information exploration and creative learning. Attention to protectionist means is necessary for avoiding risks that endanger children and young people in the digital environment, but if exaggerated, they can lead to less competence in the use of digital technology and an unwanted limitation of some children's digital agency. The novel contribution of DigiGen and this book is to add to this understanding of the differences that categorise every person leading his or her life within and across these microsystems, which may result in very different outcomes regarding the attainment of digital citizenship between individuals.

References

Ayllón, S., Barbovschi, M., Casamassima, G., Drossel, K., Eickelmann, B., Gheţău, C., Haragus, T. P., Holmarsdottir, H. B., Hyggen, C., Kapella, O., Karatzogianni, A., Lado, S., Levine, D., Lorenz, T., Mifsud, L., Parsanoglou, D., Port, S., Sisask, M., Symeonaki, M.; & Teidla-Kunitsõn, G. (2020). *ICT usage across Europe. A literature review and an overview of existing data.* DigiGen - working paper series No. 2. doi:https://doi.org/10.6084/m9.figshare.12906737.

Ayllón, S., Holmarsdottir, H. B., & Lado, S. (2023). Digitally deprived children in Europe. *Child Indicators Research, 16*, 1315–1339. https://doi.org/10.1007/s12187-022-10006-w

Baym, N. K. (2010). *Personal connections in the digital age*. Polity.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22*, 723–742. https://doi.org/10.1037/0012-1649.22.6.723

Committee on the Rights of the Child. (2021). *General Comment No. 25 on children's rights in relation to the digital environment, United Nations*, CRC/C/GC/25. https://www.ohchr.org/en/documents/general-comments-and-recommendations/general-comment-no-25-2021-childrens-rights-relation

Eickelmann, B., Barbovschi, M., Casamassima, G., Drossel, K., Gudmundsdottir, G. B., Holmarsdottir, H. B., Kazani, A., Mifsud, L., Parsanoglou, D., Port, S., Sisask, M., Symeonaki, M., & Teidla-Kunitsõn, G. (2021). *The younger generation's views on how their education is preparing them for the digital age against the background of COVID-19: Results of an exploratory study in five European countries.* DigiGen - working paper series No. 5. doi:https://doi.org/10.6084/m9.figshare.16669345.

Gibbons, A. (2015). Debating digital childhoods: Questions concerning technologies, economies and determinisms. *Open Review of Educational Research, 2*(1), 118–127. https://doi.org/10.1080/23265507.2015.1015940

Gillian, M., Suitor, J. H., Rurka, M., & Silverstein, M. (2021). Multigenerational social support in the face of the COVID-19 pandemic. *Journal of Family Theory and Review, 12*, 431–447. https://doi.org/10.1111/jftr.12397

Hayes, B., James, A., Barn, R. & Watling, D. (2022). "The world we live in now": A qualitative investigation into parents', teachers', and children's perceptions of social networking site use. *Educational Psychology, 92*(1), 340–363. https://doi.org/10.1111/bjep.12452

Helsper, E. (2021). *The digital disconnect: The social causes and consequences of digital inequalities*. Sage.

Johnson, G. M., & Puplampu, K. P. (2008). Internet use during childhood and the ecological techno-subsystem. *Canadian Journal of Learning and Technology, 34*(1). https://doi.org/10.21432/T2CP4T

Kapella, O., Schmidt, E. M., & Vogl, S. (2022). *Integration of digital technologies in families with children aged 5-10 years: A synthesis report of four European country case studies*. DigiGen-working paper series No 8. https://zenodo.org/record/6411126

Livingstone, S., Haddon, L., Görzig, A. & Ólafsson, K. (2011). *Risks and safety on the internet: The perspective of European children: Full findings*. EU Kids Online, LSE. http://eprints.lse.ac.uk/33731/.

Lotz, M. (2016). Vulnerability and resilience: A critical nexus. *Theoretical Medicine and Bioethics, 37*, 45–59. https://doi.org/10.1007/s11017-016-9355-y

Mauthner, N. S., & Kazimierczak, K. A. (2018). Theoretical perspectives on technology and society: Implications for understanding the relationship between ICTs and family life. In B. B. Neves & C. Casimiro (Eds.), *Connecting families? Information and communication technologies, generations, and the life course* (pp. 21–40). Policy Press. https://doi.org/10.51952/9781447339953.ch002

Mitra, R., Waygood, E. O. D., & Fullan, J. (2021). Subjective well-being of Canadian children and youth during the COVID-19 pandemic: The role of the social and physical environment and healthy movement behaviours. *Preventive Medicine Reports, 23*. https://doi.org/10.1016/j.pmedr.2021.101404

Neal, J. W., & Neal, Z. P. (2013). Nested or networked? Future directions for ecological systems theory. *Social Development, 22*(4), 722–737. https://doi.org/10.1111/sode.12018

Odgers, C. L., & Jensen, M. R. (2020). Annual research review: Adolescent mental health in the digital age: Facts, fears, and future directions. *The Journal of Child Psychology and Psychiatry, 61*(3), 336–348. https://doi.org/10.1111/jcpp.13190

Parsanoglou, D., Mifsud, L., Ayllón, S., Brugarolas, P., Filandrianos, G., Hyggen, C., Kazani, A., Lado, S., Symeonaki, M., & Andreassen, K. J. (2022). *Combining innovative methodological tools to approach digital transformations in leisure among children and young people*. DigiGen- working paper series No. 9. doi:https://doi.org/10.5281/zenodo.6492015.

Paus-Hasebrink, I., Kulterer, J., & Sinner, P. (2019). Social inequality, childhood and the media. In I. Paus-Hasebrink, J. Kulterer, & P. Sinner (Eds.), *Social inequality, childhood and the media* (pp. 11–43). Palgrave Macmillan.

Reynolds, L., & Scott, R. (2016). *Digital citizens: Countering extremism online*. Demos. https://demosuk.wpengine.com/wp-content/uploads/2016/12/Digital-Citizenship-web-1.pdf

Smahel, D., Machackova, H., Mascheroni, G., Dedkova, L., Staksrud, E., Ólafsson, K., Livingstone, S., & Hasebrink, U. (2020). *EU Kids Online 2020: Survey results from 19 countries*. EU Kids Online. https://doi.org/10.21953/lse.47fdeqj01ofo.

van Deursen, A. J. A. M., & Helsper, E. J. (2015). The third-level digital divide: Who benefits most from being online? *Communication and Information Technologies Annual, 10*, 29–52. https://doi.org/10.1108/S2050-206020150000010002

van Deursen, A. J., Van Dijk, J. A. G. M., & Peters, O. (2011). Rethinking Internet skills: The contribution of gender, age, education, Internet experience, and hours online to medium- and content-related Internet skills. *Poetics, 39*(2), 125–144. https://doi.org/10.1016/j.poetic.2011.02.001

Vaziri, H., Casper, W. J., Wayne, J. H., & Matthews, R. A. (2020). Changes to the work-family interface during the COVID-19 pandemic: Examining pre-

dictors and implications using latent transition analysis. *Journal of Applied Psychology, 105*(10), 1073–1087. https://doi.org/10.1037/apl0000819

Vitak, J. (2012). The impact of context collapse and privacy on social network site disclosures. *Journal of Broadcasting and Electronic Media, 56*(4), 451–470. https://doi.org/10.1080/08838151.2012.732140