Children's and Young People's ICT Experiences in School Education: Participatory Research Design to Engage Children and Young People as Experts in Research

Amelie Labusch (iD)**, Birgit Eickelmann** (iD)**,
Gianna Casamassima** (iD)**, Kerstin Drossel** (iD)**,
Greta Björk Gudmundsdottir** (iD)**, Aggeliki Kazani** (iD)**,
Louise Mifsud** (iD)**, Maria Symeonaki** (iD)**,
and Gertha Teidla-Kunitsõn** (iD)

Introduction

Research into the use of digital technology in school education has highlighted the challenges of equity and inclusivity across Europe. Equity in education has emerged as a critical issue addressed in the 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, with Sustainable Development Goal 4: 'Ensure inclusive and

A. Labusch (✉) • B. Eickelmann • G. Casamassima • K. Drossel
Institute for Educational Science, Paderborn University (UPB),
Paderborn, Germany
e-mail: amelie.labusch@upb.de

equitable quality education and promote lifelong learning opportunities for all' (United Nations, 2015). In this context, information and communication technologies (ICTs) play an important role in that they can be harnessed to facilitate the achievement of the goals of the 2030 Agenda for Education (Tjoa & Tjoa, 2016; UNESCO, 2017). However, the ongoing technological transformation poses challenges for school education to prepare children and young people with the relevant digital skills while paying attention to preventing education inequalities (OECD, 2020; Ottestad & Gudmundsdottir, 2018). The European Commission's Digital Education Action Plan addresses this key challenge and focuses on preparing schools for the digital age, outlining two core strategies: *supporting the development of a high-performing digital education ecosystem*, and *improving digital skills and competences for digital transformation* (European Commission, 2020).

The issue of equity in education is indeed recognised as a key challenge for educational institutions. Although it has been strategically addressed at the European policy level, especially since the outbreak of the COVID-19 pandemic, education equity and ICT inclusion from the perspective of children and young people have not yet been sufficiently explored. A key concept in this context is vulnerability. Lotz (2016) describes vulnerability as a human characteristic in which coping with challenges depends on the support of others. In this context, the

———————————

G. B. Gudmundsdottir
Department of Teacher Education and School Research, University of Oslo, Oslo, Norway

A. Kazani
Panteion University of Social and Political Sciences, Athens, Greece

L. Mifsud
Department of Primary and Secondary Teacher Education, OsloMet – Oslo Metropolitan University, Oslo, Norway

M. Symeonaki
Department of Social Policy, Panteion University of Social and Political Sciences, Athens, Greece

G. Teidla-Kunitsőn
School of Governance, Law and Society, Tallinn University, Tallinn, Estonia

vulnerability of children and young people is particularly pronounced because of their developmental stage and their dependence on the support of others. They do not yet have the same skills as adults to cope with life's challenges and may be more vulnerable to adverse circumstances such as poverty, illness, and family conflict. This vulnerability is exacerbated when issues of equity and inclusion are taken into account.

ICT in education is one of the elements of children's and young people's ecosystems and can be used to investigate why some children and young people are positively affected by digital technology, while others seem to be negatively affected. However, to truly understand the experiences of these children and young people, it is important to explore their perspectives.

The focus of this chapter is on children's and young people's perspectives, which explores using innovative and participatory qualitative research methods that involve them as co-researchers. These methods allow for a more equitable and inclusive approach to research, recognising children and young people as experts based on their lived experiences. Article 12 of the United Nations Convention on the Rights of the Child reinforces this, stating that the child, being 'capable of forming his or her own views, [has] the right to express those views freely in all matters affecting the child' (McMellon & Tisdall, 2020, p. 159; UNCRC, 2003). By involving children and young people as co-researchers, the research approach seeks not only to understand their experiences but also to empower them to have a voice in matters that affect them. The implementation of this principle is intended to increase understanding and to include children's and young people's views on their future, thus involving them in shaping their education and future. Particularly in educational research, the involvement of children and young people as co-researchers and experts is becoming increasingly important (Cumbo & Selwyn, 2021). Following a phenomenological approach, which allows researchers to explore the experiences and views of participants (Creswell, 2013), semi-structured interviews were conducted with children and young people on the topic of 'ICT in education'. Moreover, there is a shift from research *on* children and young people to research *with* children and young people, which is becoming increasingly common in the literature on participatory methods to meet the abovementioned rights (e.g., Bradbury-Jones & Taylor, 2015). In our study reported on in this

chapter, our goal was to include this shift by doing research *with* children and young people. Involving children and young people as equal partners in the research process enable valuable data to be obtained (Bradbury-Jones & Taylor, 2015; Collins et al., 2020; Cuevas-Parra & Tisdall, 2019; van Blerk & Barker, 2008).

To achieve this participatory approach, the research design reported on here used a specific methodological approach in the form of a video workshop. The aim was to encourage children and young people to share their experiences and to allow researchers to gain insight into their subjective perspectives. The study focuses on the needs and aspirations of children and young people as they prepare for life in the digital age and the impact of digital technology on their everyday school life. Participants take on the role of co-researchers, designing tools and conducting interviews. This participatory approach aims to promote equity and inclusion, particularly for vulnerable participants, by giving them a voice and addressing potential inequalities in digital education. The video workshops, facilitated by researchers in five European countries (Estonia, Germany, Greece, Norway, and Romania), brought together children and young people as well as teacher candidates from universities. The latter, as pre-service teachers, are not that much older than the children and young people, and in this way, they could relate more to some of their experiences than teachers or researchers who were much older. In focusing on this research design, this chapter addresses the following research questions:

How can participatory research be designed to engage children and young people as experts in research to explore their ICT experiences in school education?
    What can be learnt and what insights into the lives of children and young people can be gained by involving them in participatory research?

In this context, emphasis is given to examining:

- *Topics that children and young people raise in their interviews when they interview younger children or young people on the topic of 'ICT in education';*

- *Topics that teacher candidates develop in their interviews when interviewing children and young people about 'ICT in education';*
- *Core statements/views emerging from the interviews;*
- *Main implications for (student) teachers and school education arising from the results of the video workshop.*

Designing Participatory Research with Children and Young People

In addressing the research question, the importance of participatory research with children and young people is highlighted, particularly in terms of participation (Hart, 1992). Hart (1992) proposes a ladder of participation, which include several ways to conduct participatory research with children and young people, some of which are not necessarily very participatory. Our approach falls under what Hart (1992) refers to as 'adult-initiated, shared decisions' with children and young people (p. 8). Aldridge (2015) found that children and young people are often denied full participation in research. This is either because they are difficult to reach or access to be successfully recruited for studies or because the ethical considerations and procedures involved are seen as problematic, challenging, or even insurmountable. However, the consequence is that certain individuals or groups may then be excluded from studies altogether, limiting the knowledge available to researchers (Aldridge, 2015).

A study by van Doorn et al. (2014) aimed to strengthen the professional role of children and explore the methodological consequences of conducting experiments using recording devices. The children in the study by van Doorn et al. (2014) (28 children aged 9–10 years) were divided into groups and provided with recording devices to conduct interviews. The study concluded that involving children as co-researchers should be integrated into the main researcher's interests and not just as a motivational tool. It was found that mobile phones were not recommended for recording due to poor audio quality and difficulty switching between image and audio creation. The design of including co-researchers

makes it possible to visit places less accessible to the main researchers, such as children's rooms, and to see these places and issues from the children's perspective.

In another (case) study, elementary school students from kindergarten to eighth grade were involved in film production. The class was run as a daily elective in a public charter school. Children and young people planned, filmed, and shared their films individually or in self-selected teams. They chose their film projects and made their production plans. They were also aware of how the social construction of data was captured by the research cameras in the classroom and actively participated in the collection of video data. The researcher also acted as a teacher and had to take into account the unequal distribution of tasks and responsibilities. Although some of the children and young people were less interested, their involvement in the development of the dataset supported the analysis of the data and helped to navigate the overwhelming amount of video data (Husbye, 2019).

Both studies show that involving children and young people in participatory research can be beneficial in terms of motivation and the development of creativity. At the same time, it is clear that there are hurdles to overcome, starting with the need for appropriate recording media (when working with video data) and the fact that researchers have important responsibilities (e.g., they sometimes also act as teachers) that go beyond pure research.

Ethical considerations must also be taken into account when conducting research on children and young people as a vulnerable group (Papademas, 2009). Numerous ethical guidelines can be found when involving children and young people in education research (Alderson, 1995; Christensen & Prout, 2002; Clark & Moss, 2011; Greene & Hill, 2005). For example, as they are still minors, attention must be paid to the location of the research and whether parents are present (Bushin, 2007). Other issues may include power relations, voluntary participation, consent, and confidentiality. As methodology and ethics are closely linked in research with children and young people, it is up to the researcher to ensure the best possible methodological adaptation, such as to the

different ways in which children and young people communicate (Cohen et al., 2011; Thomas & O' Kane, 1998). We believe that this can be achieved by using participatory research methods.

Collaborative Ethnography Approach

One of these participatory research methods is collaborative ethnography. According to this approach, researchers should be actively involved as creative participants in the whole research process as active co-researchers, from the development of the questions to the implementation and beyond. This research approach originated in anthropology and has not yet been widely adopted in social research with children and young people. Rather, it refers to the collaboration between researchers and adult study participants (Belgrace & Smith, 1995; Buford et al., 2000; Campbell & Lassiter, 2015; Lassiter, 2005). To collaborate means to work together, especially in an intellectual endeavour. 'While collaboration is central to the practice of ethnography, realizing a more deliberate and explicit collaborative ethnography implies resituating collaborative practice at every stage of the ethnographic process, from fieldwork to writing and back again' (Lassiter, 2005, p. 15). The aim, then, is not to view the entire research process as researcher-centred but as a collaborative process between all those involved in the research process (Hackett, 2017; Lassiter, 2005; Kleinman, 2002). Collaboration goes beyond mere cooperation: it is a direct and collaborative partnership with little division of labour (Arnold, 2003). Specifically, in this approach, the researcher is thus called upon to share authority and control over the research process with those being researched (Campbell & Lassiter, 2015). This requires mutual interest and curiosity in the topic under study (Marcus, 2007). As an equal partnership between researchers and research participants is sought, this is not only a methodological but also a theoretical approach (von Unger, 2014).

Video Workshop Approach

In the video workshop, the children and young people participating in our study were involved as co-researchers, following the approach of collaborative ethnography. The active participation of the research participants in the research itself took place in several stages: (a) jointly developing tools—interview guidelines—to address the main research focus of how children and young people view their education in terms of preparing them for future life in the digital age; (b) taking on the role of interviewer and conducting interviews with other children and young people and videotaping them; and (c) reflecting on the methodological approach and thus contributing to improving the participatory research design (Casamassima et al., 2022).

When recruiting participants for our study, particular attention was paid to ensuring that children and young people from disadvantaged backgrounds were included. It was also ensured that the sample was as heterogeneous as possible in terms of, for example, gender, social and migration background, and location. The interview guide, which the children and young people, and teacher candidates developed together with researchers from all five participating countries (Estonia, Germany, Greece, Norway, and Romania), was designed to use language appropriate for children. Due to the COVID-19 pandemic, the interviews were conducted both using a videoconferencing tool and in Norway only face-to-face (see more in Eickelmann et al., 2022).

In each participating country, the sample included children and young people attending classes just before the transition to a new formal stage of education and children and young people attending classes just after the transition to a new formal stage of education as well as teacher candidates from universities. All together, drawn from the 5 countries, 49 children and young people and 20 teacher candidates were included in the samples. Thus, the study intentionally recruited children and young people from a similar age group, with a focus on exploring the relevance of education transitions. This approach aimed to create a comfortable and supportive environment that would encourage participants to share their experiences and express their opinions freely among their peers.

Fig. 1 Foci of interview questions

Furthermore, the involvement of teacher candidates was seen as crucial to this study as the participating trainee teachers had the opportunity to hear directly from the children and young people about their current and past experiences with ICT in education, which they could use to inform their professional development and future classes or courses they would teach. The children and young people were asked to develop interview questions around three themes: (a) what is taught about ICT in school; (b) challenges in using ICT in school; and (c) digital literacy needed in the future (Casamassima et al., 2022) (Fig. 1).

Throughout the implementation, it was important to keep the children and young people interested (cf. Husbye, 2019). Therefore, attention was paid to activation through playful means of getting to know each other at the beginning of the workshop, regular breaks, and continuous feedback.

In the first part (developing the interview guidelines) of a two-part video workshop (conducted either in one day or over two consecutive days), participants were introduced to the project and its research topic, followed by a methodological introduction focusing on the development of interview guidelines and how to conduct an interview. The children and young people worked together to develop questions they would like to ask in the interviews to explore how children and young people see their schools preparing them for the digital age. Similarly, the teacher candidates worked together to develop questions they would like to ask in the interviews to explore the same issue. On the technical side, the participants were also introduced to how the interviews were to be video recorded. While no recording device was specified, it was observed whether the use of certain devices, such as mobile phones for video recording, was problematic, based on the recommendation of van Doorn
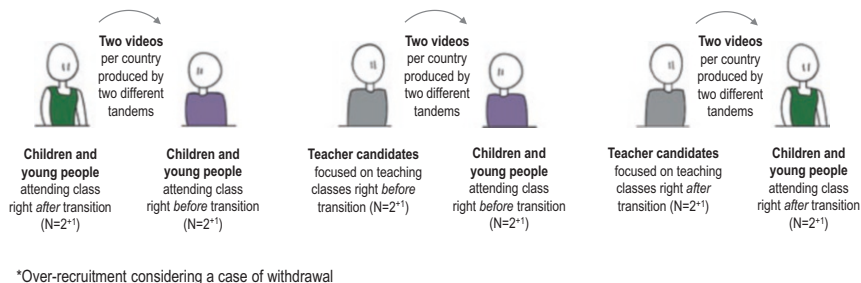
*Over-recruitment considering a case of withdrawal

Fig. 2 Tandems implementing video-recorded interviews

et al. ([2014](#)). The second part of the workshop was devoted to conducting and videotaping a total of at least six interviews in each country. These were produced by at least six tandems, composed in such a way that other children and young people (attending classes immediately after the transition) interviewed two children and young people (those attending classes immediately before the transition), and children and young people from both levels of education were interviewed by teacher candidates who would teach at the respective levels in the future. This procedure is illustrated in Fig. [2](#):

Given the different pandemic situations[1] in the participating European countries, it is important to note that each country decided whether to conduct the video workshop as described above, in person, or in a digital format using video conference tools (Casamassima et al., [2022](#)). As described by van Doorn et al. ([2014](#)), the digital implementation also gave the researchers some insight into the children's rooms when the children and young people participated from there. The following section aims to explore participatory methods in education research by reflecting on the implementation of the video workshop, analysing and evaluating how involving children, young people, and teacher candidates as partners in research through the video workshop can provide valuable data to complement previous methodological approaches. This was achieved in

---

[1] The COVID-19 pandemic has had a significant impact on education in Europe, with school closures and a shift to distance learning affecting millions of students. From the spring of 2020, many European countries implemented nationwide school closures. While some schools have been able to adapt to online learning, the shift has been challenging for many students and teachers, with concerns about unequal access to technology and learning resources.

two ways. On the one hand, a qualitative content analysis of the developed interview guidelines was carried out. On the other hand, other metadata was taken into account—for example, the experiences of the children and young people, the teacher candidates, and the researchers (see Casamassima et al., 2022 for more details).

The qualitative data analysis entailed a thematic content analysis of the textual empirical data in the form of interview questions across the five European countries (Creswell & Creswell, 2018; Mayring, 2015). In this approach, the researchers collected interview data from a variety of sources, including children and young people and teacher candidates, who had developed their own interview questions in their respective countries. These questions were then translated into English and used in the analysis. To begin the analysis, the researchers read the transcripts to identify key ideas, themes, and patterns. Next, the researchers coded the data by assigning labels or keywords to different segments of the text. Finally, the researchers interpreted the findings and concluded the experiences and perspectives of the children and young people and the teacher candidates.

Results on Learning from Children and Young People Through Participatory Research

In the following, responses to the research questions will be provided on how participatory research can be designed to engage children and young people as experts in research to explore their ICT experiences in school education and what can be learned, and what insights into the lives of children and young people can be gained by involving them in participatory research. To this end, results are reported on what topics the children and young people address in their interviews when interviewing younger children or young people on the topic of 'ICT in education' and what topics the teacher candidates develop in their interviews with children and young people on the topic of 'ICT in education'. Furthermore, we present the main implications for (student) teachers and school education derived from the results of the video workshops.

Interview Questions Developed by Children and Young People

The development of the interview guidelines varied considerably between the five countries (Estonia, Germany, Greece, Norway, and Romania). Given that the Estonian participants were the oldest age group (15–16 years old), it was not surprising that their interview questions were more sophisticated or developed. The questions they developed were both thematic and focused, as the example below shows (Fig. 3).

As the children in Germany were quite young (10 years old), they were accompanied by a researcher to help during the question development process. The children developed questions that focused on the use of ICT in school, the existence of subjects such as computer science, and the desire for more use of social media in the classroom. However, to address the future aspect, it was also important to find out what the younger children (grade 4 and below) wanted to be when they grew up and if it had anything to do with technology, as the following examples show us (Fig. 4).
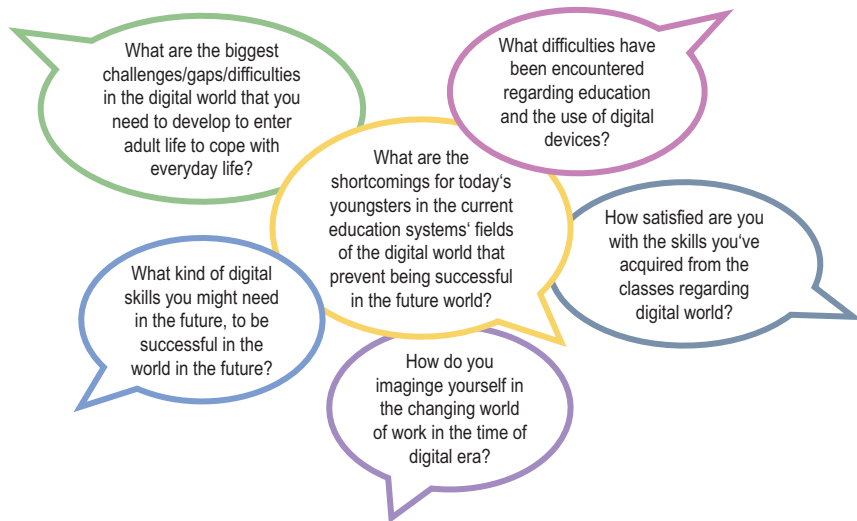

Fig. 3   Interview questions developed by the young people in Estonia

Fig. 4 Interview questions developed by children in Germany

Overall, it was clear from the development of the questions in Germany that children and young people had a different concept of the future to that of adults. For example, they only asked about the future in adulthood in terms of career choice. Otherwise, they always referred to the future in terms of secondary school. They started with 'Are you looking forward to secondary school?' and then went on to ask what they wanted from their digital education in secondary school and whether their current (primary) school was preparing them for their digital future in secondary school. This shows the challenge of including, for instance, young children as their idea of the future can be limited.

In Greece, the children and young people were in grade 7 and prepared the questions under the supervision of two researchers. Some of the questions they developed were general, while others were more specific and related to school and teaching, such as the following (Fig. 5).

The children and young people in Norway (aged 12 and 13) were the only ones who took part in the video workshop in person. Initially, they needed support to understand what was expected of them when they started to work on the interview guidelines. More children participated in the Norwegian video workshop than in the other countries. This resulted in a less-structured setting compared to the breakout rooms in the other countries involved. The three researchers moved between the six different rooms for the children and helped them to get started. This had to do with how they conducted the interviews. The children sat together
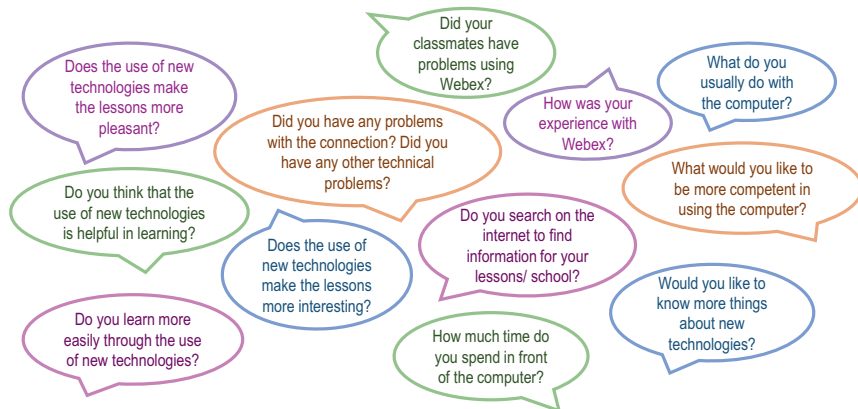
Fig. 5   Interview questions developed by the children and young people in Greece
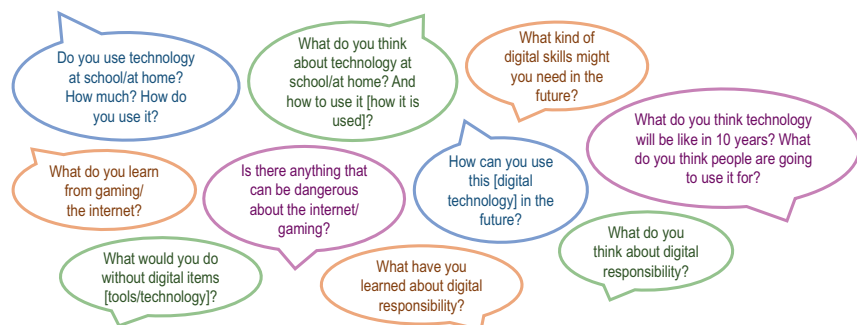

Fig. 6   Interview questions developed by the children and young people in Norway

in a room to develop the interview questions, and it was easier for one of the researchers to check on them as a group as they developed the interview questions. After receiving initial explanations, the children became quite independent in developing their questions. The questions ranged from general questions about what they use and what they think they will use in the future to more specific questions about gaming, digital responsibility, and risks (Fig. 6).

The children and young people in Romania were also accompanied by a researcher who helped when needed. During the children's group work, in which two 12-year-old girls developed interview questions, a researcher was present to offer assistance if needed. This was important as children in Romania are still quite young after their first year of secondary school. The girls were given instructions on three topics and asked to develop questions on their own. However, the research assistant also encouraged them to add more questions to explore the topics further. Two topics proved to be more challenging, especially in terms of difficulties related to digital technologies and future digital skills. It was particularly challenging for the children to imagine how a fourth grader would approach these questions (Fig. 7).

Overall, the children and young people that developed the interview questions focused on digital skills that might be needed, ranging from using text and presentation programmes, videoconferencing tools, and school platforms to creating content for social media. Interview questions also included a focus on the availability of digital devices and the Internet at school and on teachers' digital literacy and use of ICT. The potential of

Fig. 7 Interview questions developed by the children and young people in Romania

digital technology to motivate or support learning was also raised, with reference to the Internet and games. In addition, the impact of COVID-19 is reflected in the questions developed in Greece and Romania, which deal with online distance learning. Questions about the use and benefits developed by the children and young people included a focus on the younger generation's satisfaction with the use of digital technology in education, including asking for ways to improve. Finally, a series of interview questions also included the challenges of digital education, ranging from challenges with an Internet connection and well-being, especially during distance learning, to the issue of Internet safety and digital responsibility.

Interview Questions Developed by the Teacher Candidates

The teacher candidates also developed interview questions to ask the children and young people. In contrast to the young people, the teacher candidates in Estonia focused their questions (both in the preparation of the questions and the interview) on distance learning as a consequence of the COVID-19 pandemic. This was also the case for teacher candidates in Greece. Estonia's teacher candidates' interview questions partly focused on specific applications and environments used in education or on overarching skills developed in distance education.

In Germany and Romania, the teacher candidates faced the challenge of formulating questions in a child-friendly way as the children and young people were still very young (see above). In Germany, they developed questions about the existence of rules or routines in the use of ICT at school and about future skills that children and young people might need in dealing with computers. The teacher candidates also considered aspects of Internet safety and the risks of ICT use when developing their interview questions.

In Norway, the teacher candidates developed a comprehensive list of questions ranging from COVID-19-related issues to use, competence issues, and general challenges. The interview guidelines included questions about what the children and young people learn at school in

relation to technology, challenges in using technology, and prospects as well as about their teachers' digital literacy and use of technology in the classroom.

The teacher candidates in Romania developed questions about the subjects taught in school, the devices used for different subjects, learning styles, and the importance of academic success and difficulties in access and use but also difficulties concerning specific school subjects and perceived differences among children and the reasons for these differences. Also included were questions about the future of digital literacy related to practical aspects and the idea of a future where robots would replace teachers.

Reflecting on the video workshop, some teacher candidates, such as those from Germany, stated that the participatory method has the potential to be extended and possibly used in teacher training and as part of university courses.

Discussion, Main Implications, Limitations, and Future Perspectives

With the video workshop approach, the children and young people, in particular, were called upon to provide the researchers with expertise on everyday school life for the digital generation and to support the researchers in cases where previously applied methodological approaches were not sufficiently informative to assess children's and young people's subjective perspectives and needs related to ICT experiences in school education.

In light of long-standing proposals, such as those by Bradbury-Jones and Taylor (2015), Collins et al. (2020), Cuevas-Parra and Tisdall (2019), and van Blerk and Barker (2008), it is increasingly important to consider involving children and young people as equal partners in the research process to obtain valuable data. The eight types of participation in Hart's (1992) ladder of participation can be useful to consider and as mentioned previously our approach fell under the sixth type, namely *adult-initiated, shared decisions with children and young people*. The video workshop

presented can serve as a promising starting point for further research and practice in this regard.

Children and young people who are currently attending school are essentially the key actors at the centre of the research as they are the primary stakeholders and beneficiaries of digital education. Thus, they are the ones who experience first-hand how ICT is taught and used for learning in schools. Involving children, young people, and teacher candidates as active partners in research is an important way of involving them in decisions that affect their everyday lives. By giving them a voice and an active role in the research process, they can provide valuable insights and perspectives that might not otherwise be considered. This approach also helps to build trust and collaboration between researchers and participants and promotes a more equitable and inclusive research process. Involving children and young people as co-researchers recognises their expertise based on their lived experiences and encourages their active participation in decisions that affect their education and future.

In summary, several key lessons can be drawn from the results of this study:

- Overall, the feedback in all the countries was positive, and the participants seemed to appreciate the video workshop. This aspect should also be emphasised from an ethical point of view (e.g., Christensen & Prout, 2002; Greene & Hill, 2005): as participants should not be harmed in any way by collaborative research, they must have a positive experience and feel empowered by their participation.
- The teacher candidates stated that the participatory method has the potential to be extended and possibly used in teacher training and as part of university courses.
- The video workshop proved to be a useful method, revealing previously hidden aspects such as the different ways in which children, young people, and adults conceptualise the future.
- Overall, it can be concluded that the video workshop is highly useful as a method of collaborative ethnography. It allows researchers to involve children, young people, and teacher candidates as collaborators and co-researchers in the study of ICT in education. This approach promotes equity and inclusion, recognises the expertise of all participants,

and ensures that their voices are heard. In addition, the video workshop enables the generation of rich and detailed data that can be analysed and shared across Europe to inform policy and practice.

In general, several challenges related to the video workshop approach need to be mentioned, which have already been elaborated in Casamassima et al. (2022). The video workshop requires a high degree of preparation and sensitivity on the part of the researchers (see also Husbye, 2019). The impact of the researcher needs to be considered when planning interview questions, that is, whether the researcher should intervene and, if so, how much. This needs to be balanced against the age of the participants. This was reflected, for example, in the fact that the Estonian participants, who were the oldest age group (15–16 years old), developed more sophisticated interview questions. Furthermore, following the logic of collaborative ethnography, future research should consider collaborating not only during data collection but also in writing up the results, together with the participants themselves. Yet, how this should be done in terms of providing financial incentives for the time that children and young people would use should be considered and perhaps be included in funding projects that include a participatory approach. The preparation effort is relatively high, and in several countries, there were significant differences in the duration of the interviews, which required additional organisational effort. Although the problem of video recording (with devices such as mobile phones) mentioned in the study by van Doorn et al. (2014) did not arise in the video workshops in the five countries, it should be kept in mind in the future and dealt with preventively. However, the abovementioned advantages (e.g., revealing previously hidden aspects) are so convincing that they outweigh the disadvantages if video workshops are properly organised.

References

Alderson, P. (1995). *Listening to children: Children, ethics and social research*. Barnardo's.

Aldridge, J. (2015). *Participatory research. Working with vulnerable groups in research and practice*. Bristol University Press, Policy Press. https://doi.org/10.2307/j.ctt1t8933q

Arnold, P. (2003). *Kooperatives Lernen im Internet. Qualitative Analyse einer Community of Practice im Fernstudium* [Collaborative learning on the Internet. Qualitative analysis of a Community of Practice in distance learning]. Waxmann.

Belgrace, L., & Smith, K. J. (1995). Negotiated validity in collaboration ethnography. *Qualitative Inquiry, 1*(1), 69–86. https://doi.org/10.1177/107780049500100105

Bradbury-Jones, C., & Taylor, J. (2015). Engaging with children as co-researchers: Challenges, counter-challenges and solutions. *International Journal of Social Research Methodology, 18*(2), 161–173. https://doi.org/10.1080/13645579.2013.864589

Buford, M., Reuben, A., & Pattilo-McCoy, M. (2000). Do you see what I see? Examining a collaborative ethnography. *Qualitative Inquiry, 6*(1), 65–87. https://doi.org/10.1177/107780040000600105

Bushin, N. (2007). Interviewing with children in their homes: Putting ethical principles into practice and developing flexible techniques. *Children's Geographies, 5*(3), 235–251. https://doi.org/10.1080/14733280701445796

Campbell, E., & Lassiter, L. E. (2015). *Doing ethnography today*. Wiley.

Casamassima, G., Eickelmann, B., Labusch, A., Drossel, K., Barbovschi, M., Gudmundsdottir, G. B., Holmarsdottir, H. B., Kazani, A., Mifsud, L., Parsanoglou, D., Sisask, M., Symeonaki, M., & Teidla-Kunitsōn, G. (2022). *Beyond participation: Video workshops across Europe to engage in research with children and young people and teacher candidates as collaborators investigating ICT in education* (DigiGen - working paper series No. 7). https://doi.org/10.5281/zenodo.6973455.

Christensen, P., & Prout, A. (2002). Working with ethical symmetry in social research with children. *Childhood, 9*(4), 477–497. https://doi.org/10.1177/0907568202009004007

Clark, A., & Moss, P. (2011). *Listening to young children: The mosaic approach*. National Children's Bureau.

Cohen, L., Manion, L., & Morrisson, K. (2011). *Research methods in education*. Routledge.

Collins, T. M., Jamieson, L., Wright, L. H. V., Rizzini, I., Mayhew, A., Narang, J., Tisdall, E. K. M., & Ruiz-Casares, M. (2020). Involving child and youth advisors in academic research about child participation: The Child and Youth Advisory Committees of the International and Canadian Child Rights Partnership. *Children and Youth Services Review, 109*, 104569. https://doi.org/10.1016/j.childyouth.2019.104569

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.).

Cuevas-Parra, P., & Tisdall, E. K. M. (2019). Child-led research: Questioning knowledge. *Social Sciences, 8*(44), 1–15. https://doi.org/10.3390/socsci8020044

Cumbo, B., & Selwyn, N. (2021). Using participatory design approaches in educational research. *International Journal of Research and Method in Education, 45*(1), 60–72. https://doi.org/10.1080/1743727X.2021.1902981

Eickelmann, B., Casamassima, G., Labusch, A., Drossel, K., Sisask, M., Teidla-Kunitsōn, G., Kazani, A., Parsanoglou, D., Symeonaki, M., Gudmundsdottir, G. B., Holmarsdottir, H. B., Mifsud, L., & Barbovschi, M. (2022). *Children and young people's narratives and perceptions of ICT in education in selected European countries complemented by perspectives of teachers and further relevant stakeholders in the educational context* (DigiGen- working paper series No.11). https://doi.org/10.5281/zenodo.7152391.

European Commission. (2020). *Digital Education Action Plan 2021–2027*. Publications Office of the European Union. https://ec.europa.eu/education/sites/education/files/document-library-docs/deap-communication-sept2020_en.pdf

Greene, S., & Hill, M. (2005). Researching children's experiences: Methods and methodological issues. In S. Greene & D. Hogan (Eds.), *Researching children experience: Approaches and methods* (pp. 1–22). Sage.

Hackett, A. (2017). Parents as researchers. Collaborative ethnography with parents. *Qualitative Research, 17*(5), 481–497. https://doi.org/10.1177/1468794116672913

Hart, R. A. (1992). Children's Participation: From tokenism to citizenship. *Innocenti Essay, 4*.

Husbye, N. E. (2019). "My mom said you can't use my face, but my voice is alright": Children as active agents in research utilizing video data. In A. Eckhoff (Ed.), *Participatory research with young children. Educating the young child* (Vol. 17, pp. 89–103). Springer. https://doi.org/10.1007/978-3-030-19365-2_6

Kleinman, S. (2002). Emotions, fieldwork and professional lives. In T. May (Ed.), *Qualitative Research in Action* (pp. 376–395). Sage.

Lassiter, L. E. (2005). *The Chicago guide to collaborative ethnography*. University of Chicago Press. https://doi.org/10.7208/chicago/9780226467016.001.0001

Lotz, M. (2016). Vulnerability and resilience: A critical nexus. *Theoretical Medicine and Bioethics, 37*(1), 45–59. https://doi.org/10.1007/s11017-016-9355-y

Marcus, G. E. (2007). Ethnography two decades after writing culture. *Anthropological Quarterly, 80*(4), 1127–1145. https://doi.org/10.1353/anq.2007.0059

Mayring, P. (2015). Qualitative content analysis: Theoretical background and procedures. In A. Bikner-Ahsbahs, C. Knipping, & N. Presmeg (Eds.), *Approaches to qualitative research in mathematics education* (pp. 365–380). Springer.

McMellon, C., & Tisdall, E. K. M. (2020). Children and young people's participation rights: Looking backwards and moving forwards. *The International Journal of Children's Rights, 28*(1), 157–182. https://doi.org/10.1163/15718182-02801002

OECD - Organisation for Economic Co-Operation and Development. (2020). *What students learn matters: Towards a 21st century curriculum*. OECD. https://doi.org/10.1787/d86d4d9a-en

Ottestad, G., & Gudmundsdottir, G. B. (2018). Information and communication technology policy in primary and secondary education in Europe. In J. Voogt, G. Knezek, R. Christensen, & K.-W. Lai (Eds.), *Second handbook of information technology in primary and secondary education* (pp. 1343–1362). Springer. https://doi.org/10.1007/978-3-319-71054-9_92

Papademas, D. (2009). IVSA code of research ethics and guidelines. *Visual Studies, 24*(3), 250–258. https://doi.org/10.1080/14725860903309187

Thomas, N., & O' Kane, C. (1998). The ethics of participatory research with children. *Children and Society, 12*(5), 336–348. https://doi.org/10.1111/j.1099-0860.1998.tb00090.x

Tjoa, A. M., & Tjoa, S. (2016). The role of ICT to achieve the UN Sustainable Development Goals (SDG). In F. Mata & A. Pont (Eds.), *ICT for promoting human development and protecting the environment. WITFOR 2016. IFIP Advances in Information and Communication Technology* (Vol. 481, pp. 3–13). Springer. https://doi.org/10.1007/978-3-319-44447-5_1

UNCRC - UN Committee on the Rights of the Child. (2003). *General Comment No. 5, General measures of implementation of the Convention on the Rights of the Child*. http://tbinternet.ohchr.org/_layouts/treatybodyexternal/Download.aspx?symbolno=CRC%2fGC%2f2003%2f5&Lang=en

UNESCO - United Nations Educational Scientific and Cultural Organization. (2017). *Leveraging information and communication technology to achieve Education 2030: Report of the UNESCO 2017 International Forum on ICT and Education 2030.*

United Nations. (2015). *Sustainable development goals.* https://sdgs.un.org/goalsunesco

van Blerk, L., & Barker, J. (2008). The wider relevance of undertaking research with children. *Children's Geographies, 6*(2), 117–119. https://doi.org/10.1080/14733280802024052

van Doorn, F., Gielen, M., & Stappers, P. J. (2014). Children as co-researchers: More than just a roleplay. In *Proceedings of the 2014 Conference on Interaction Design and Children (IDC '14)* (pp. 237–240). Association for Computing Machinery. https://doi.org/10.1145/2593968.2610461.

von Unger, H. (2014). *Partizipative Forschung. Einführung in die Forschungspraxis* [Participatory research. Introduction to research practice]. Springer. https://doi.org/10.1007/978-3-658-01290-8.