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

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DigiGen

The impact of technological transformations on the Digital Generation

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Abstract: This paper presents a description of the innovative method of video workshops used in the DigiGen project and its implementation in the field of ICT in education in five European countries. This method aims at investigating children's and young people's reflections and perceptions on education preparing them for life in the digital age in Estonia, Germany, Greece, Norway, and Romania. Drawing on the collaborative ethnography approach followed in the DigiGen project, one important aspect of the video workshops is the participation of children and young people - together with teacher candidates - as co-researchers and experts. However, this paper is primarily intended to provide insights into the implementation of the video workshop method in these five countries and some initial implications that result from this.

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Executive Summary

This paper describes the innovative qualitative approach of a video workshop in the DigiGen project and its implementation in research on information and communications technology (ICT) in education in five European countries. This methodological approach aims to explore children's and young people's perceptions and reflections on education that prepares them for life in the digital age in Estonia, Germany, Greece, Norway, and Romania. Drawing on the collaborative ethnography approach followed in the DigiGen project, one important aspect of the video workshops is the participation of children and young people, together with teacher candidates, as co-researchers and experts. However, this paper is primarily intended to provide insights into the implementation of the video workshop method in these five countries as well as some initial implications that result from this.

Introduction

In the EU-funded Horizon 2020 project, "The Impact of Technological Transformations on the Digital Generation (DigiGen)" (duration: 2019-2022), the research in the work package focusing on "ICT in education" aimed to examine how children and young people in five European countries (Estonia, Germany, Greece, Norway, and Romania) perceive the ways their education is preparing them for their future in the digital age. Beyond the lack of participatory methods used to research this topic (Lassiter, 2005), the innovative method of the video workshop is explored in detail, with not only children and young people being involved as co-researchers, but also teacher candidates as they are the teachers of the future.

Methodological approach applied in the video workshop

The study design of the video workshop can be divided into three stages, with children, young people, and teacher candidates (1) jointly developing research instruments, (2) conducting and video recording interviews, and (3) reflecting on the methodological approach and thus contributing to improving participatory educational research design. The sample (in all five countries together) consists of 49 children and young people and 20 teacher candidates. In total, 38 video-recorded interviews are available. It should be noted that only the method of the video workshop is examined in this working paper and the results will be published in another publication.

Country profiles

The video workshop is structured in the same way in all five countries. Although there are differences in the recruitment of the sample, the setting, the interview guidelines developed, the content of the recorded videos, the experiences, and the implications, the respective implementation is described in country profiles.

Experiences and implications within the method of video workshops for further research

During the implementation of the video workshop, a variety of experiences and implications for further research emerged. Overall, it is a method that is perceived very positively by all participants. On the one hand, there are challenges. These include the fact that implementing the video workshop requires a high degree of preparation in advance and sensitivity on the part of the researchers, with the recruitment process in the context of the COVID-19 pandemic proving to be difficult. During the video workshop, depending on the age of the children and young people, more or less support is needed in question development, which decreases with increasing age. It has also been found that it is more difficult to take on the role of the interviewer than to be interviewed oneself. On the other hand, the benefit of the method outweighs the challenge: the video workshop has proven a useful method which uncovers previously hidden aspects of how children and young people view their education in terms of preparing for future life in the digital age. This is due to the participating children and young people as well as teacher candidates all receiving the opportunity to come up with their own interview questions. It is, therefore, worthwhile to consider this particular method and take it into account in future research.

1. Introduction

1.1 DigiGen – What and Why

The digital transformation of everyday life and the rapid growth of information and communication technologies (ICT) affect all areas of life (European Commission, 2020a, 2020b; Organisation for Economic Co-Operation and Development, 2020; The United Nations Educational, Scientific and Cultural Organization, 2021). Thus, it is vital to develop significant knowledge about how children and young people use and are affected by technological changes in their everyday lives. Research must centre on different fields of children's and young people's daily lives in order to identify which beneficial, but also harmful, effects of their use of ICT occur as a means to develop effective strategies.

The EU-funded Horizon 2020 project, "The Impact of Technological Transformations on the Digital Generation (DigiGen)" addresses this very issue by aiming to investigate the impact of technological change and ICT use on different areas of children's and young people's daily lives, and in particular, education, family, leisure, and civic participation (see Figure 1).
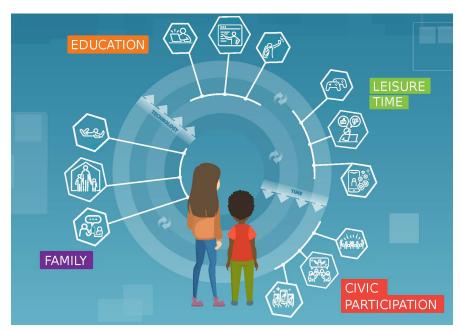
Figure 1: Research fields in the DigiGen Project (DigiGen, 2020)

In addressing the risk of a widening educational divide and further inequality, it is important for DigiGen to also consider the aspect of vulnerability, i.e. according to Lotz (2016), an inherent quality of human beings is the dependence of every human being on others and the affective social nature of human beings. In this context, the vulnerability of children and young people is characterised by the life phase of growing up and the process of finding one's place in the world in which coping with challenges depends on others' support. The decisive factor for assigning children and young people to a vulnerable group is not necessarily their individual characteristics (e.g. their gender or their social or migration background), but rather the conditions to which they are exposed, i.e. vulnerability can arise from personal, social, economic, or environmental conditions in a person's life (e.g. social exclusion and social inequality, as well as gender inequalities). The crucial issue at stake is that vulnerable groups are more affected by stressful

or threatening situations than resilient groups. While it is possible that vulnerable groups are not identifiable in stable situations, they are unequally more affected in threatening situations. In this context, vulnerabilities represent the circumstances in which vulnerable groups are particularly at risk (e.g. risks or threats to well-being and health, which are expressed in the use of ICT by children and young people).

Referring to this, the DigiGen project aims to develop knowledge of how and why some children and young people benefit from the use of ICT, while others seem to be impacted negatively in their everyday lives (e.g. European Commission 2020a, 2020b; Ottestad & Gudmundsdottir, 2018; van Deursen & van Dijk, 2019; van Dijk, 2020). This is achieved using participatory methods. The project focuses on children and young people (up to 18 years), which is also referred to as the digital generation. Keeping with the collaborative ethnography approach, the digital generation is involved as co-researchers and several innovative methods are used within the project.

The overall project, carried out across multiple European countries, is divided into different work packages. Four of these packages (WP's 3-6) aim to generate new empirical data on the impact of digital transformations in children's and young people's everyday lives regarding family, education, leisure time, and civic participation. Information and communication technologies in education will be the focus of the following chapters.

1.2 DigiGen – ICT in Education

Following a collaborative ethnographic approach and focusing on "ICT in education," research aims to examine how children and young people in five European countries (Estonia, Germany, Greece, Norway, and Romania) perceive the ways their education is preparing them for their future in the digital age. These five European countries have been chosen as they represent a variety of educational systems, e.g. referring to ICT infrastructure of schools and ICT use at and for schools to foster digital skills (Eickelmann et al., 2021). Particular attention is given to the transition into a new formal educational phase, marking an important milestone in the lives of children and young people growing up across Europe (McCoy et al., 2020). However, it should be noted that the transition phase in the countries takes place at different ages. While this phase occurs between 4th and 5th grade in Germany—the children in the youngest age group of the five countries (approximately between 9 and 11 years)—young people in Estonia go through a formal transition phase between 9th and 10th grade at around 15 to 16 years old. In the work package, "ICT in education" in the DigiGen project, the following research question is addressed: "How do children and young people regard their education in terms of preparing them for future life in the digital age?"

Beyond the lack of participatory methods used to research this topic (Lassiter, 2005), there is a need for new and innovative ways to contribute to the development of effective educational ICT-related policies and practices in education, which draw on the perspectives of the children and young people themselves. This gap is addressed by the innovative method of the so-called video workshop in which, not only children and young people were involved as co-researchers, but also teacher candidates as they are the teachers of tomorrow. This method was also carried out to gain insights and knowledge on school and how ICT is being used since they are experiencing it first-hand. Through bringing children, young people, and teacher candidates together in the video workshop, they achieved a space to raise their awareness of the issues they face in terms of technological transformations in education.

2. Methodological Approach Applied in the Video Workshop

Based on the idea of collaborative ethnography, where collaboration refers to the relationship between researchers and those being researched to create an ethical and authentic representation of the group at the centre of the research, children, young people, and teacher candidates are involved as collaborators in the research process (Clerke & Hopwood, 2014; Lassiter, 2005). In the DigiGen research on "ICT in education," video workshops were implemented as a research method in which children, young people, and teacher candidates explored the research question addressed in the work package: "How do children and young people regard their education in terms of preparing them for future life in the digital age?" This involved both children and young people, as well as teacher candidates acting as co-researchers and co-constructors, developing research instruments and conducting research to explore the main research question.

To describe the methodological approach applied in the video workshop, section 2.1 of this chapter outlines a description of the adopted design and the sample. This is followed by an introduction to phases of instrument development referring to interview guidelines and the implementation of interviews within the video workshop (see section 2.2).

2.1 Design and Sample

Design

At the heart of the video workshop is, on the one hand, the perspectives of children and young people and, on the other hand, the aim to bring teacher candidates and schoolchildren into a direct exchange.

To get to the bottom of the younger generation's perspective towards digital education and gain insights into the subjective perspectives, encouraging children and young people to share their experiences, needs, and wishes in terms of preparation for future life in the digital age, video workshops were facilitated by researchers in five European countries (Estonia, Germany, Greece, Norway, and Romania). This brought together children and young people, as well as teacher candidates who are actively engaged as experts and co-researchers. The term "video workshop" is derived from the fact that interview guidelines are developed in a workshop followed by interviews conducted and video recorded by and with participants.

The research subjects' participation as collaborators, co-designers, and co-researchers proceeds in several stages: 1) jointly developing research instruments, i.e. interview guidelines addressing the main research question about how children and young people regard their education in terms of preparing them for future life in the digital age; 2) conducting and video recording interviews; and 3) reflecting on the methodological approach, and thus contributing to improving participatory educational research design.

According to the stages, the video workshop is divided into three main parts:
(1)   Preparation of video-recorded interviews
(2)   Implementation of video-recorded interviews, and
(3)   Reflecting the methodological approach.

Both parts are carried out in the same manner in all five countries according to a previously developed and defined scheme.

(1) Preparation of the video-recorded interviews

During the first part of the study, participants were introduced to the DigiGen project and its research topic followed by a methodological introduction focusing on the development of interview guidelines and how to conduct an interview. In group work phases, the children and young people attending classes after the formal school transition jointly developed questions they would like to ask children and young people attending classes before the formal school transition. This was done in order to explore how children and young people regard their schools in preparing them for the digital age.

Similarly, teacher candidates focusing on teaching classes right before and after the formal school transition worked together to develop questions to address in the interviews they conducted, with children and young people attending classes before or after the formal school transition.
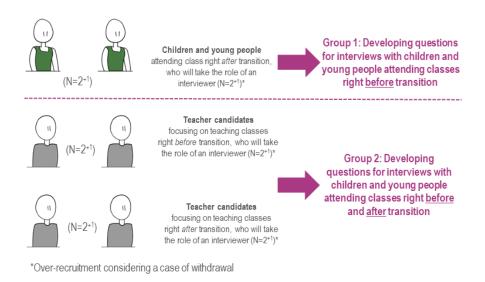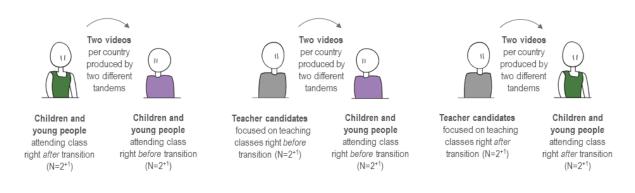
Figure 2: Groups preparing video-recorded interviews

Teacher candidates had the opportunity to ask the researchers for help at any time during the interview. While in some countries, the group of children and young people receive support from a researcher who helps them when they have trouble thinking of questions, children in other countries were left to come up with questions entirely (or almost entirely) on their own.

(2) Implementation of video-recorded interviews

The second part of the workshop was devoted to conducting and video-recording at least six interviews in each country. Children, young people, and teacher candidates who developed a guideline with questions were the interviewers and they interviewed a child or young person in tandem pairs or groups. These six tandems were composed in such a way that children and young people attending classes right after the transition (N = 2) interviewed two of those attending classes right before the transition (N = 2), and children and young people from both educational levels (N = 2/each level) were interviewed by teacher candidates who would be teaching the respective levels in the future (N = 2/each level).

*Over-recruitment considering a case of withdrawal

Figure 3: Tandems implementing video-recorded interviews

These interviews were then video recorded so that at least six videos were available in each country. Due to over-recruitment, which was required considering the potential for withdrawal, particularly against the backdrop of COVID-19, different numbers of video-recorded interviews emerged in the participating countries. Considering the varying pandemic situations in the participating European countries, each country decided individually whether the video workshop had to be conducted in person or online using video conferencing tools (for country-specific details, see chapter 3).

(3) Reflecting the methodological approach

During the video workshop, it was intended that children and young people as well as teacher candidates could give feedback on the methodological approach of the video workshop. The countries were free to ask for feedback after the preparation of the videos as well as after the implementation of the videos or only after both phases.

Sample

In each participating country, the sample was comprised of children and young people attending classes right before transition (N = at least 4) and children and young people attending classes right after transition (N = at least 4). Furthermore, teacher candidates seeking standardised training for a certificate to teach children and young people before transition (N = at least 2) and after transition (N = at least 2) participated and differed not only in gender, but also in subject areas they focus on as well as institutions they attend for teacher training. Involving teacher candidates is vital to this research as the participating teacher candidates will have a chance to learn directly from children and young people about their current and past experiences and wishes in terms of ICT in education.

By the general method of snowball sampling (Cooksey & McDonald, 2019; Naderifar et al., 2017), various approaches to recruit children, young people, and teacher candidates were pursued. This included national networks—most notably, the national stakeholder committees engaged in the project—educational institutions, and links to related research projects.

The sample (in all five countries together) consists of 49 children and young people and 20 teacher candidates. In total, 38 video-recorded interviews are available. Table 1 shows the

samples of children and young people as well as teacher candidates divided into their functions as interviewers and interviewees in the five countries.

Table 1: Video workshop samples

Country	Number of children and young people in the role of interviewers	Number of teacher candidates in the role of interviewers		Number of children and young people in the role of interviewees	
	After transition	Before transition	After transition	Before transition	After transition
Estonia	3	1	2	4	3
Germany	2	2	2	4	3
Greece	2	2	1	4	1
Norway	5	3	3	11	5
Romania	2	2	2	4	2
Total	14	10	10	27	14

Since the focus is set on educational transition phases, the children and young people participating differ in terms of age in the different countries according to the different educational systems, ranging from nine to 16 years across all countries. Aiming for diversity in the sample, children and young people further differ in terms of gender, types of school, and individual background characteristics. Table 2 shows each country's composition with the allocated individual characteristics as sampling criteria.

Table 2: Composition of the video workshop children and young people sample

Country	Number of children and young people	Age range	Gender		Migration background		Socio-economic status		
			Female	Male	Yes	No	High	Middle	Low
Estonia	9	15-16	5	4	-	9	1	6	2
Germany	9	9-10	5	4	2	7	1	5	3
Greece	7	12-13	1	6	-	7	2	4	1
Norway	16	12-13	14	2	2	14	-	16	-
Romania	8	10-12	8	-	-	8	1	6	1
Total	49	9-16	33	16	4	45	5	36	8

The table shows that there is an age range between the youngest children (9 years) in Germany and the oldest young people (16 years) in Estonia. In the sample selection, attention was paid to drawing a variety of children and young people in terms of gender, migration background, and socio-economic status so that the development of the questions and the content of the video-recorded interviews would be as diverse as possible.

2.2 Focus Areas in Question Development and Interview Implementation

The way in which implementation has actually taken place in the individual countries is outlined in the individual country profiles in chapter three. To allow for a cross-country comparative analysis of the video-recorded interviews, taking into account that different interview guidelines were developed in each country, three topics were determined in the context of an expert meeting of the authors and were focused on in developing the interview questions in all countries:

What is taught about ICT at school

The interview guidelines to be developed should relate, among other things, to what is taught about ICT in school.

Posed challenges using ICT at school

Furthermore, there will be a focus on challenges that arise when using ICT in schools.

Digital skills requited in the future

In addition, the interview guidelines should address digital skills that will be required in the future.

Exemplary questions on all three main topics, as well as further exemplary questions that do not directly relate to one of these three main topics, are given in the following chapter providing country profiles of the five participating countries.

3. Country Profiles

Elaboration on concrete methodological implementation in the different countries and key findings regarding the abovementioned research questions will form the basis for individual country profiles before moving on to cross-country implications for educational research emerging from implementation of the collaborative methodological approach applied through the video workshops (see chapter 4).

In the following sections, the country profiles of the individual countries – Estonia (section 3.1), Germany (section 3.2), Greece (section 3.3), Norway (section 3.4), and Romania (section 3.5) – are introduced. These are all structured in the same way according to the video workshop recruiting process, the video workshop setting, the core observations in both video workshop parts, and potential conclusions and implications from the video workshops for further DigiGen research in the respective countries.

3.1 Estonia

Video workshop recruiting process in Estonia

The recruiting process turned out to be very challenging for several reasons. While the video

workshop was planned on the week of a school holiday, allowing students to take part in the workshop without missing any classes, they were still busy with other activities (hobbies, family trips, etc.). The students were recruited via teachers in schools, public sharing of the invitation (Facebook), and with peer-to-peer calls among those students who had already given their consent to participate. One impact of COVID-19 was that not all participants were able to participate in the face-to-face workshop after the regulations regarding the increase in COVID-19 infections were enforced prior to workshop. The workshop was moved online in order to allow all of the recruited participants to take part.

Recruiting teacher candidates proved even more challenging. For this, short video introductions were created and shared on several lists, including those for teacher candidates in several curriculums at Tallinn University and outside of the university among projects and associations that unite teacher candidates. The invitation was shared with the teachers who participated in another part of DigiGen with the request to share the invitation among their colleagues at other schools.

Overall, 16 people were recruited, resulting in 12 of them participating in the workshop and conducting seven interviews. One of the 10th grade participants had both the role of interviewer and interviewee in separate interviews.
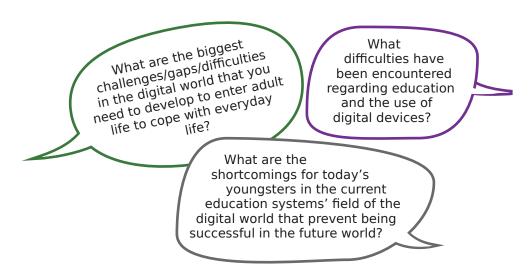
Video workshop setting in Estonia

Although prepared as an on-site video workshop, the regulations regarding the spread of COVID-19 were changed a few days before, resulting in having the video workshop conducted online (via Zoom, with breakout rooms) on 26 October 2021. Three researchers facilitated the workshop from 11.00-15.30 with several breaks, including a lunch break. The day was divided into three sessions: (1) to get to know each other, the DigiGen project, and the interview method; (2) preparations of the interviews; and (3) carrying out the interviews. The workshop brought together four 9th graders (before transition) and five 10th graders (after transition), five of which were female and one male, eight 16-year-olds and one 15-year-old. Among the three teacher candidates, there was one student who had just started his BA studies to become a teacher, one who was already working as a teacher while obtaining his MA, and one who was actively working at a school as a teacher while obtaining her MA in Education Management. The teacher candidates were two males (age 23 and 25) and one female (age 23).

Core observations video workshop part I: Development of interview questions by children and young people and teacher candidates in Estonia
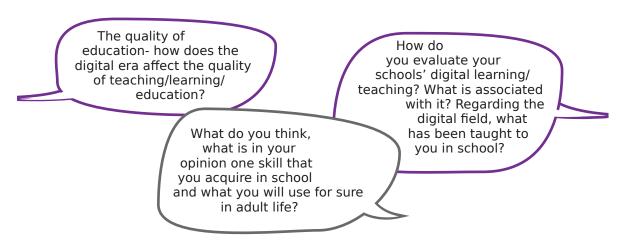
Development of interview questions by children and young people

There were three students (10th graders) preparing the interviews with students before transition (9th graders). For developing the questions, students worked in separate breakout rooms with the supervision of one researcher. The template for developing the questions gave students the main topic (if and how today's education prepares young people for adult life in the digital era) with three sub-categories (digital competences taught in school; challenges and difficulties; and digital skills needed in the future). One of the participants was more active than the other two. The researcher attending the group was asked for advice regarding wording. Overall, the participants managed very well in coming up with questions, although it was challenging to find the correct wording for the questions. The questions they developed were very on-topic and focused. Some of the questions prepared were:

> What are the biggest challenges/gaps/difficulties in the digital world that you need to develop to enter adult life to cope with everyday life?

> What difficulties have been encountered regarding education and the use of digital devices?

> What are the shortcomings for today's youngsters in the current education systems' field of the digital world that prevent being successful in the future world?

Development of interview questions by teacher candidates

There were three teacher candidates developing the questions in a separate breakout room with one researcher supervising them. Similarly to the young people, teacher candidates had a template with the topics to help them develop the questions. The teacher candidates decided not to differentiate the questions for 9th and 10th grades, arguing that the age gap is almost non-existent. Far more questions were developed than what the duration of the interview (approximately 20 minutes) allowed. Teacher candidates agreed that, during the interviews, each of them would handpick their most favoured questions. Opposed to young people, teacher candidates emphasised the questions (while preparing questions and also interviewing) related to distance learning as the result of the COVID-19 pandemic. Their questions partly focused on specific apps and environments used in education (e.g. Kahoot, eSchool, Quizlet) or overarching skills developed during distance learning (self-management, time-planning, concentration, etc.). Some of the questions the teacher candidates prepared included:

> The quality of education- how does the digital era affect the quality of teaching/learning/education?

> How do you evaluate your schools' digital learning/teaching? What is associated with it? Regarding the digital field, what has been taught to you in school?

> What do you think, what is in your opinion one skill that you acquire in school and what you will use for sure in adult life?

Core observations video workshop part II: Implementation of the interviews by children and young people and teacher candidates in Estonia

The methodological premises of the workshop allowed participants to raise the questions and issues important to them, regardless of their importance to the study. This created an ethical, but also methodological, dilemma regarding whether to get involved as a researcher in the creation of the questions or interviews when perceived that it does not solely focus on the study's aim. For collaborative research, understanding the questions participants developed was as important as the interviews conducted. In the case of Estonia, we decided to allow

participants to lead us to the topics and issues important to them, regardless of the provided focus and topics of the study. In some interview tandems between teacher candidates and students, the teacher candidates positioned themselves from the perspective of teacher, rather than on the equal level of young people. The inequality was not observed in tandems between young people.
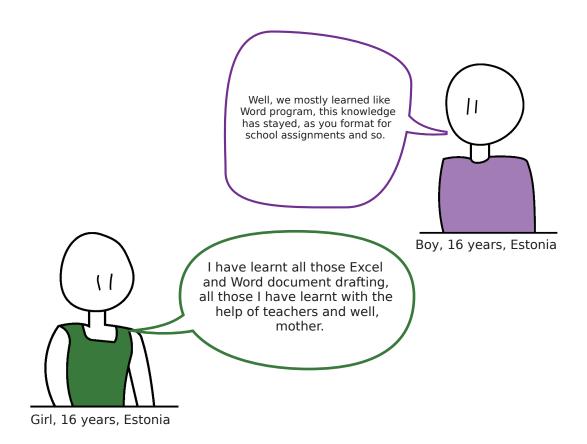
The workshop made it possible to gain insight of what is considered important in education and ICT and even what one considers to be ICT. For teacher candidates, ICT was generally seen as online classes, and importance was given to overarching skills, such as self-management with time-planning and the ability to concentrate. Teacher candidates also encouraged young people to ask for help from their teachers when needed. For young people, ICT was seen as Microsoft programs, different operating systems, online environments, and programming. Interestingly, while most children and young people thought schools should teach more in regards to ICT, when asking what should be taught, they usually wanted a deeper knowledge of Microsoft programs, instead of acquiring new skills or knowledge.

Perspectives of children and young people towards addressing what is taught about ICT in school

What is taught about ICT at school

Basic skills in programs such as Microsoft Word, Excel, Google Docs, and PowerPoint were referred to in regard to what ICT skills are taught at school. In addition, different online environments were described. To add, one participant addressed online behaviour as something that was discussed in school. Many found that schools could teach much more regarding ICT (e.g. advanced Excel and Word, Cloud systems) as some of the children and young people had to learn Microsoft Office programs on their own. There was also a wish to learn programming languages in school.
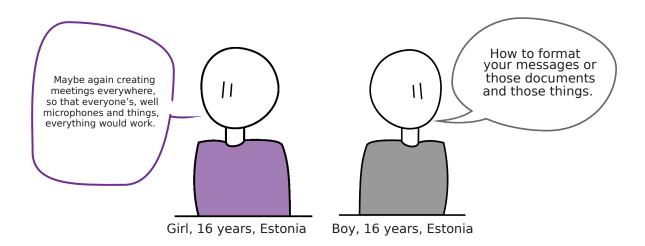
Well, we mostly learned like Word program, this knowledge has stayed, as you format for school assignments and so.

Boy, 16 years, Estonia

I have learnt all those Excel and Word document drafting, all those I have learnt with the help of teachers and well, mother.

Girl, 16 years, Estonia

Perspectives of children and young people towards addressing posed challenges using ICT

Posed challenges using ICT at school

The challenges of using ICT are largely connected to one's ability to concentrate instead of a lack of specific skills or knowledge when using ICT. Although it was the opposite for some participants, learning with ICT allowed others to focus even more as the home-environment is quieter and classmates were not there to interrupt their focus.
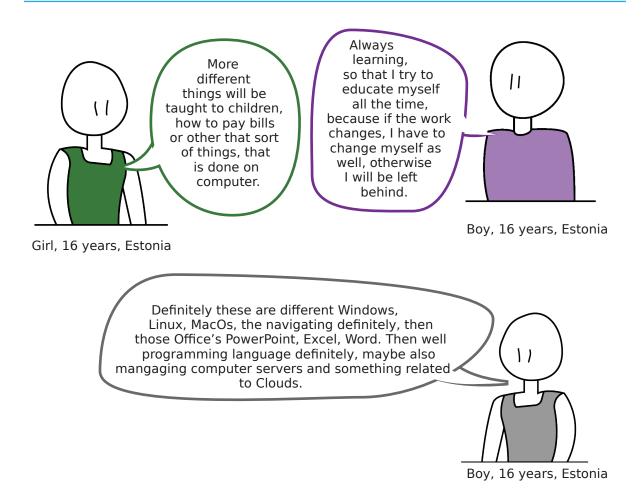
In some cases, it was challenging for students to work on their own with PowerPoint and Word. One participant considered online meetings to be the biggest challenge (e.g. working microphones, clear sound). Different challenges were posed by one student – with the digital age, everyone is sitting at home, more thoughts should be given on nutrition to avoid becoming overweight.

Maybe again creating meetings everywhere, so that everyone's, well microphones and things, everything would work.

How to format your messages or those documents and those things.

Girl, 16 years, Estonia   Boy, 16 years, Estonia

Perspectives of children and young people towards addressing future digital skills

Digital skills required in the future

Young people see the future as being even more digitalised than it is now; therefore, people will learn more in order to be able to deal with it. Excel, Word, and PowerPoint are still considered useful for the future in order to draw up documents or analyse data. For the future, more knowledge and skills regarding Cloud systems would be necessary. Digital signatures are also seen as necessary for the future. Navigation in operating systems, such as Windows, Linux, and MacOs, is considered necessary for the future. In addition, programming was seen as a future digital skill together with knowing how to manage computer servers. One participant considered using Gmail as a skill to develop in his adult life. Another young person brought up their hope for more digital learning and teaching children how to pay bills, etc., on the computer in the future. Regarding future digital skills, children and young people seem to value lifelong learning in order to be able to cope with the changing world.

> More different things will be taught to children, how to pay bills or other that sort of things, that is done on computer.

Girl, 16 years, Estonia

> Always learning, so that I try to educate myself all the time, because if the work changes, I have to change myself as well, otherwise I will be left behind.

Boy, 16 years, Estonia

> Definitely these are different Windows, Linux, MacOs, the navigating definitely, then those Office's PowerPoint, Excel, Word. Then well programming language definitely, maybe also mangaging computer servers and something related to Clouds.

Boy, 16 years, Estonia

Potential conclusions and implications from the video workshops in Estonia for further DigiGen research

After each interview, the participants were directed back to the main room in the Zoom call where they provided short feedback regarding their experience. Participants experienced a greater challenge in taking on the role of the interviewer than answering the questions. The young people considered some questions difficult, making them think of new perspectives about which they had not previously thought. Overall, feedback was positive and the participants seemed to enjoy the experience.

To conclude, the young people who participated would like to have more ICT classes to delve more deeply into Excel, Word, and PowerPoint, while knowledge in programming and computer servers was welcomed as well. Comparing what is taught at school, participants were, on the one hand, satisfied with it, while on the other hand, they also wished to have more knowledge on the very same topics already taught to them. It could be that they lacked ideas in that moment of what else to wish for or what skills and knowledge they do not know about that could prove useful in the future. Regarding the future, young people do see it becoming more digital and, therefore, need more knowledge in working with computers.

3.2 Germany

Video workshop recruiting process in Germany

Recruiting participants posed challenges, especially referring to reaching the target group of vulnerable children and young people. For example, some families lacked the technical equipment or the necessary know-how to let their children participate in a workshop conducted online. In this context, class teachers were of immense support by providing children with printed consent forms to take home with them, and also by calling parents or even providing the participating children with devices so that they could participate.

Video workshop setting in Germany

Due to COVID-19 safety regulations and the good experiences with online interviews already conducted in another task in work package 5, the video workshop in Germany was conducted online at the beginning of October 2021 (1 and 2 October). According to the workshop's core structure of two parts, it was facilitated on two consecutive days for approximately three hours each. However, due to withdrawals of children and young people as interviewees with short notice on the second day, an extra video workshop was facilitated on 6 October 2021 in a smaller group, including the primary school teacher candidates who developed questions on the first day (1 October) as well as two fourth graders, the last grade before the transition to the secondary level.

Core observations video workshop part I: Development of interview questions by children and young people and teacher candidates in Germany

Development of interview questions by children and young people

The children's group worked (two children, 10 years old) to develop interview questions themselves, accompanied by a researcher to help them if needed (see section 2.1). As the two children after transition in Germany were very young, having a researcher with them turned out to be indispensable. The children developed interview questions on their own, but needed some help to stay focused, formulate interview questions, and write them down. In addition, for the children, it was challenging to address two of the given topics: challenges related to digital technology and future digital skills needed. Thus, a researcher's support was appreciated. The two children developed questions focusing on the use of ICT in school, the presence of subjects such as computer science, and a potential desire for "more social media used in class." However, to address the future aspect, it was also important for them to find out what the younger children (grade 4) wanted to be when they grew up and whether it was related to technology. To address the above-mentioned aspects, various questions were developed as illustrated by the examples below:

Do you have any digital devices at school? Which ones would you (still) like to have?
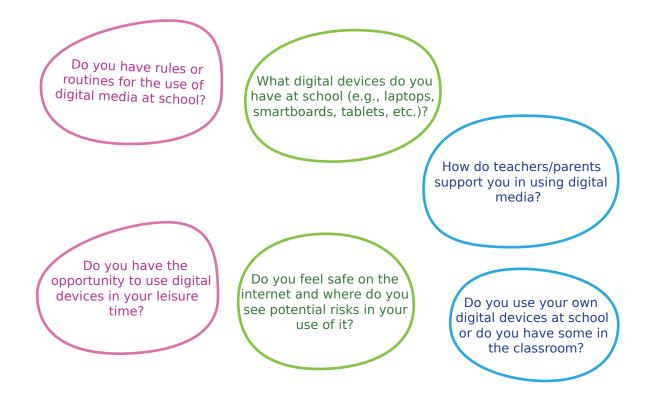
What do you think about the fact that there are so many digital media/ devices today?

Do you want to post something later that everyone can see?

How long are you allowed to use technology during lessons?

Development of interview questions by teacher candidates

The teacher candidates developed far more questions than the participating children and it emerged that the group work could have taken even more time for the teacher candidates. The only challenges reported referred to adapting language that was suitable for children aged 9-10. With reference to the three given topics, they developed questions related to the existence of rules or routines while using ICT at school and future skills that children and young people would like "to be able to do on the computer later" (from the interviews of the teacher candidates in Germany focusing on both before and after transition teaching). The teacher candidates, both with a focus on before transition and after transition, have also taken aspects of safety on the internet and risks through the use of ICT into account in developing the questions. Most of the teacher candidates' questions were developed together for both educational levels, and they prepared a few specific questions focusing on the educational level before or after transition into secondary level of school, as illustrated below:

Do you have rules or routines for the use of digital media at school?

What digital devices do you have at school (e.g., laptops, smartboards, tablets, etc.)?

How do teachers/parents support you in using digital media?

Do you have the opportunity to use digital devices in your leisure time?

Do you feel safe on the internet and where do you see potential risks in your use of it?

Do you use your own digital devices at school or do you have some in the classroom?

The teacher candidates, focusing on teaching before transition, were curious to know what the children thought would change in terms of ICT use in secondary school. In contrast, the teacher candidates, focusing on teaching after transition, asked what has changed in the use of ICT in the transition to secondary school and what new challenges have arisen in this context.

Core observations video workshop part II: Implementation of the interviews by children and young people and teacher candidates in Germany
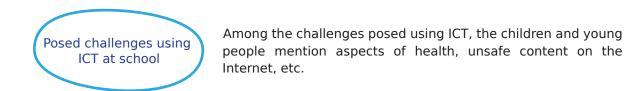
Conducting interviews and recording various breakout rooms to facilitate group work went smoothly. The interview breakout rooms were set up for a maximum of one hour each. It turned out that the interviews between children took less time than the interviews between teacher candidates and children. During the interviews, a variety of responses emerged from the children about how they regard their schools as preparing them for future life in the digital age.

Perspectives of children and young people towards addressing what is taught about ICT in school

What is taught about ICT at school

With reference to what is taught about ICT in school, the use of tablets and learning apps was reported often.

I use the iPad, for example, for Anton. It's a learning app.

We have an app called Anton, which we sometimes use. For homework and sometime for practice.

Boy, 10 years, Germany

Boy, 9 years, Germany

We just learn with iPads or something sometimes, but we don't have lessons like that about digital stuff.

Boy, 9 years, Germany

Perspectives of children and young people towards addressing posed challenges using ICT

Posed challenges using ICT at school

Among the challenges posed using ICT, the children and young people mention aspects of health, unsafe content on the Internet, etc.

Perspectives of children and young people towards addressing future digital skills

Digital skills required in the future

The children's responses include, with reference to digital skills for the future that children and young people want to learn, for instance, to "edit videos to make them really good" (girl, 10 years, Germany), to "colour in pictures on the iPad by Hundertwasser" (girl, 9 years, Germany), and to "order some stuff on the internet" (girl, 10 years, Germany).

Potential conclusions and implications from the video workshop in Germany for further DigiGen research

Overall, the video workshop method proved to provide insightful results in Germany. Due to the positive feedback, especially from the children, further development of this approach should be considered in educational research, or even to expand it into two workshops. One workshop was dedicated to children and young people only, preparing interview questions and conducting interviews, and a separate one was focused on teacher candidates who take more time in each of the phases.

Against the background that it was challenging to reach vulnerable groups, it makes sense to involve teachers (or members of other institutions approached) in the recruiting and implementation processes. Including a researcher to help children and young people develop interview questions proved to be most efficient with children ages 9 to 10.

Throughout the children's question development as well as the interviews with the children, a common theme emerged: the important role of social media for children and an understanding of the use of social media as aspirational digital skills for the future.

3.3 Greece

Video workshop recruiting process in Greece

The recruiting process turned out to be very challenging. Apart from the difficulties as the result of the pandemic, there were difficulties in finding a date and time that would be convenient for the most participants to attend. This also had to do with the fact that the workshop was planned during a busy time in the school year when both children and teacher candidates had increased obligations and extracurricular activities. In addition, all contact with teacher candidates and children's parents, to inform and assure their consent, had to be carried out either by phone or by email.

Therefore, the workshop was held on a Saturday when ten participants were available. However, the available time for the workshop was limited to three and a half hours, which meant that only short breaks were possible between the different phases of the workshop.
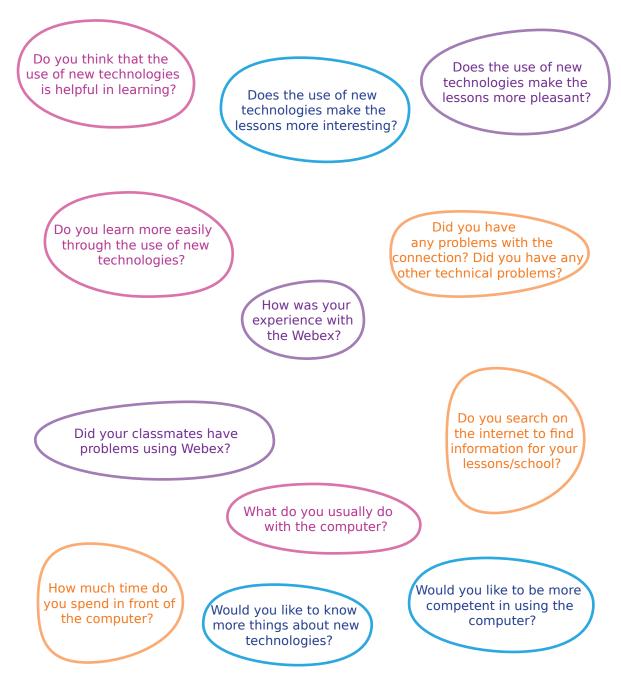
Video workshop setting in Greece

The video workshop in Greece was scheduled from the beginning as an online event held on Zoom with breakout rooms. After several attempts to recruit both teacher candidates and children and to find a convenient date for everyone, the workshop was finally held on Saturday, 27 November 2021. Three researchers facilitated the workshop, and it was held from 10.00 to 13.30. The day was divided into three sessions: (1) to get to know each other, DigiGen, and the interview method; (2) preparing for the interviews; and (3) carrying out the interviews. The workshop brought together four 6th graders (before transition, i.e. 11-12 years old), three 7th graders (after transition, 12-13 years old), six males and one female. Among the three teacher candidates who were studying to become teachers, there were two females (21 and 22 years old) and one male (22 years old). The participants were from four different cities, the two largest in the country and two medium-sized in the North and in the South.

Core observations video workshop part I: Development of interview questions by children and young people and teacher candidates in Greece

Development of interview questions by children and young people

There were two students (7th graders) preparing interviews with students before transition (6th graders). For developing the questions, students worked in separate breakout rooms with the supervision of two researchers who initiated the discussion by providing possible ideas for potential questions, without being specific, so that the students themselves formulated the questions. The participants were not active initially and they needed some encouragement to share their ideas. The researchers helped them in finalising questions and kept notes that were given to the students in order to conduct the interview. Some of the questions they developed were general and some were more specific and focused on school and lessons:

Do you think that the use of new technologies is helpful in learning?

Does the use of new technologies make the lessons more interesting?

Does the use of new technologies make the lessons more pleasant?

Do you learn more easily through the use of new technologies?

Did you have any problems with the connection? Did you have any other technical problems?

How was your experience with the Webex?

Did your classmates have problems using Webex?

Do you search on the internet to find information for your lessons/school?

What do you usually do with the computer?

How much time do you spend in front of the computer?

Would you like to know more things about new technologies?

Would you like to be more competent in using the computer?

Development of interview questions by teacher candidates

There were three teacher candidates developing questions in a separate breakout room supervised by one researcher. Teacher candidates were much more eager and competent to discuss and prepare their questions. They decided not to differentiate the questions for 6th and 7th graders, arguing that the age gap was not significant. The questions the teacher candidates prepared included:

Do you have any [accounts in] social media?

During the period of distance learning, how did you communicate with your friends? Did you also meet face-to-face?

When did you get your first mobile phone?

In general, how did you find this period where classes were held through the computer? Which were the main difficulties? The class? How was it?

When was the class held face-to-face? Did your teachers use computers or digital media? Did they show you stuff on the computer, e.g., videos? Did you like it? Or you prefer other methods (to discuss...)?

Do you think that you could learn equally well this way? Were there any difficulties?

During the period you had distance learning, did you feel at any moment that some of your classmates were becoming more aggressive in their communication? For example, in the chat, were there disagreements? Or an incident that you remember? Do you think that something like that could happen if classes were held face-to-face?

How did you feel when after so much distance learning, such a long period, you went back to school?

Core observations video workshop part II: Implementation of the interviews by children and young people and teacher candidates in Greece

The participants, even those after transition who were initially timid during the preparation of the interview questions, turned out to be more active during the interviews. Teacher candidates seemed to be comfortable, both in the cases of interviewing students before and after transition.

Overall, five interviews were held:
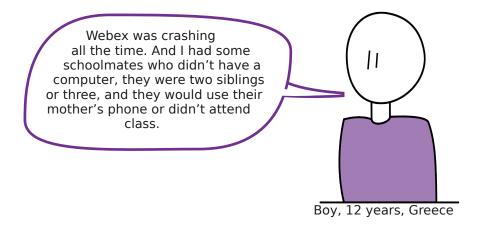
1.   A male teacher candidate interviewing a male student after transition
2.   A male teacher candidate interviewing a male student after transition
3.   A female teacher candidate interviewing a male student before transition
4.   A female teacher candidate interviewing a male student before transition
5.   A male student after transition interviewing a female student before transition

Perspectives of young people regarding the experience of distance learning during the pandemic

Much of the interview questions and responses covered the pandemic and distance learning. The findings from the video workshop correspond to the findings of the interviews held within the main study. Students acknowledged some positive aspects of distance learning, although they seem to prefer going to school and attending classes face to face:

It had some good things, I didn't have to wake up early and go to school, it was also sometimes fun, but I like it more being at the classroom with my friends.

Boy, 12 years, Greece

Technical problems and problems of connectivity, faced by children and young people themselves and by classmates, were also reported:

Webex was crashing all the time. And I had some schoolmates who didn't have a computer, they were two siblings or three, and they would use their mother's phone or didn't attend class.

Boy, 12 years, Greece

Perspectives of children and young people towards addressing what is taught about ICT in school

What is taught about ICT at school

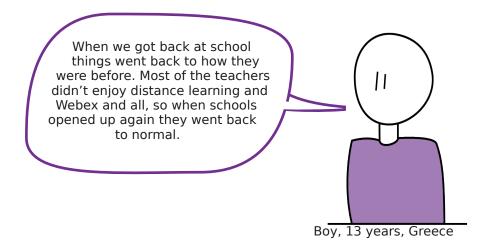The experience of distance learning is considered an opportunity to enhance one's digital skills since the students reported that they became much more familiar with several applications, such as Word, PowerPoint, eClass, and Webex.

However, the general assessment of their school's contribution in acquiring and improving their digital skills is more or less negative:

> When we got back at school things went back to how they were before. Most of the teachers didn't enjoy distance learning and Webex and all, so when schools opened up again they went back to normal.

Boy, 13 years, Greece
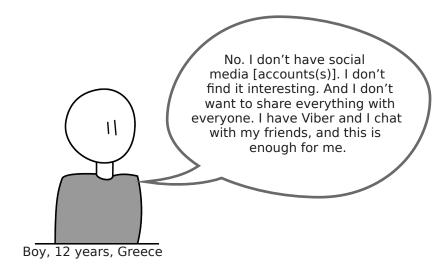
Perspectives of young people towards the use of digital technologies
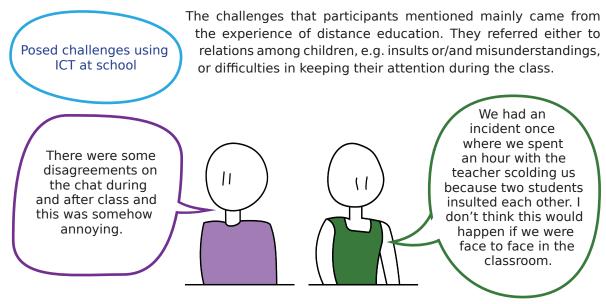
All participants were familiar with digital technologies. They use them for several purposes, including gaming and navigating on the internet to watch videos and listen to music. They consider digital technologies essential for their communication with friends, but also with parents, with the latter being the main reason for acquiring their first mobile phone.

> I got a mobile phone last summer. I went to a summer camp for two weeks, so my parents got me a phone, so that we could talk every day.

Boy, 12 years, Greece

> I got the mobile phone when I finished elementary school. High school was in a different area, not far from our house, but I am going alone and my parents wanted to feel secure that they can find me anytime.

Boy, 13 years, Greece

Although essential for everyday communication, some reluctance towards social media was expressed, particularly from younger participants:

> No. I don't have social media [accounts(s)]. I don't find it interesting. And I don't want to share everything with everyone. I have Viber and I chat with my friends, and this is enough for me.

Boy, 12 years, Greece

Perspectives of children and young people towards addressing posed challenges using ICT

Posed challenges using ICT at school

The challenges that participants mentioned mainly came from the experience of distance education. They referred either to relations among children, e.g. insults or/and misunderstandings, or difficulties in keeping their attention during the class.
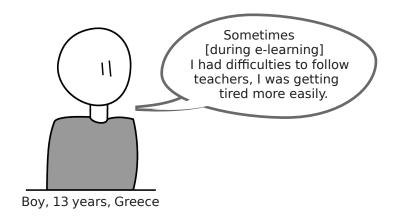
> There were some disagreements on the chat during and after class and this was somehow annoying.

> We had an incident once where we spent an hour with the teacher scolding us because two students insulted each other. I don't think this would happen if we were face to face in the classroom.

Boy, 12 years, Greece   Boy, 12 years, Greece

> Sometimes [during e-learning] I had difficulties to follow teachers, I was getting tired more easily.

Boy, 13 years, Greece

Perspectives of children and young people towards addressing future digital skills

Digital skills required in the future

The question of what digital skills will be needed in the future was not included in the interview guidelines developed during either of the video workshops in Greece.

Potential conclusions and implications from the video workshop in Greece for further DigiGen research

The content of the interviews did not provide substantially different information from the interviews conducted during the pilot study and the main study of WP5 within DigiGen. However, the most interesting point that participants acknowledged in the workshop's final feedback session was the teacher candidates' and students' active involvement in the research process. Even those who were timid in preparing the interview questions (the two 7th graders) found the experience very interesting and seemed to feel that they were actors in a "scientific" endeavour.

This involvement could serve as a guide for future research designs, based on more participatory methods than the traditional ones. It requires, however, a great deal of effort, especially in the recruitment stage, since children and adults who are not familiar with research do not feel very comfortable or eager taking part in participatory and interactive activities, especially when communication is only conducted through digital means without any face-to-face interaction.

3.4 Norway

Video workshop recruiting process in Norway

The recruiting process proved to be the most challenging part of the video workshop. It was challenging to get children to participate and many of them were probably anxious regarding Covid-19 and meeting other children they did not know. The researchers started by sending out open invitations via e-mail to schools as well as posting on various social media sites. This resulted in only a handful of participants. The research team then contacted colleagues within teacher education and their personal network of teachers who were in contact with 7th and 8th graders. There was also great uncertainty about who would show up on-site on a Saturday morning in the middle of a pandemic, so a decision was made to over-recruit participants. This resulted in 11 7th graders, five 8th graders, and six teacher candidates showing up for the workshop. A total of 14 girls and two boys, in addition to two male teacher candidates and four female teacher candidates, participated. Furthermore, two technical support persons, one research assistant, and three DigiGen researchers were present during the video workshop.

The researchers appreciated to get one parent who brought a group of girls from one Grade 7 class in Oslo. This helped ensure there were enough Grade 7 students to interview. It was challenging to try to organise who would interview who and not being able to plan this aspect in advance. In the end, the interviews were organised in a way that resulted in some one-to-one interviews and other interviews including 2-4 participants (group interview) as some of the children did not feel comfortable being interviewed alone Also, as the research team was responsible for one entire group, the researchers did not want to turn anyone away and attempted to be inclusive and make the best of the situation.

The feedback that the research team received from the participants was extremely positive and the students (both grades 7 and 8) found the workshop both exciting and informative. The mother that brought the group of 7th graders was very positive for the opportunity for the group to participate since, due to Covid-19, the group had had few opportunities to meet each other. This event also contributed to socialisation outside of school. The opportunity to meet up with peers, share a pleasant lunch, and talk about digital technology and how it is affecting young lives today was thus experienced as positive and enjoyable for all those participating.

Video workshop setting in Norway

The Norwegian team organised the video workshop as a one-day, face-to-face event. The video workshop in Norway was organised on-site at the Oslo Metropolitan University. The team considered this important in order to create a good working environment and the possibility for reflection. Due to this, the participants came from Oslo and its surrounding areas, meaning there were no participants representing other parts of the country or remote areas. However, the participants came from a variety of schools (rural, suburban, urban) and represented both private and public schools. The workshop was conducted on a Saturday (November 6th, 2021 from 9:30-16:30, with one hour for lunch) as the children and young people had different timetables on weekdays which made it difficult to find a time that suited everyone. Also, this was the only day possible for parents to accompany their children to the university.

The teacher candidates and the 8th graders were supposed to meet at 09.30 in the morning, starting the workshop at 10.00 sharp. The 7th graders were supposed to meet up at 11.30 starting with a joint lunch. The workshop continued after lunch and was completed at approximately 16.30.

The day of the workshop began with an introduction and information about the goals for the day. Then, the Grade 8 students went into one room to prepare their interview questions while the teacher candidates were placed in another room to prepare their questions. This first part of the day was then spent on the two groups' information-gathering and development of interview questions.

Once the interview questions were prepared, the research team printed them out so that each person had a written set of questions to work with during the interviews. The Grade 7 students joined us at lunch time, and the researchers had a group lunch with all of the participants. In total, there were 28 persons present during the workshop.

The interviews began after lunch, with the Grade 8 students interviewing the Grade 7 students and the student-teachers interviewing Grade 7 and Grade 8 students.

Core observations video workshop part I: Development of interview questions by children and young people and teacher candidates in Norway

Starting the day

The researchers came to the university early in order to set up cameras in six rooms as well as in the plenary room. We organised breakfast for the participants and printed out necessary documents with information. The workshop started by welcoming the participants and introducing ourselves (the researchers) to the parents and the children. The researchers noted down the telephone numbers of parents in case of emergency and made sure that everyone felt taken care of. Some of the participating children were, for example, a bit anxious and found the workshop a bit scary. There were a couple of friends showing up together and the parents told the research team about various aspects we should take into consideration when working with the children. All of these concerns had to be taken into account when dividing them into pairs/

groups. After having introduced the plan for the day and the overall themes of the questions (three mutual themes), the researchers divided the participants into two groups. One group was for teacher candidates and one was for the 8th graders. The participants went into separate rooms to develop questionnaires.

Development of interview questions by children and young people

It was necessary to help the 8th graders in the beginning as they did not fully understand the expectations. The researchers took turns assisting them and, in the end, they came up with a set of questions divided between the three main themes.

The questions were the following:

Do you use technology at school/at home? How much? How do you use it?

What do you think about technology at school/at home? And how to use it [how it is used]?

Is there anything that can be dangerous about the internet/gaming?

What do you learn from gaming/the internet?

What would you do without digital items [tools/technology]?

What have you learned about digital responsibility?

What do you think about digital responsibility?

What kind of digital skills might you need in the future?

How can you use this [digital technology] in the future?

What do you think technology will be like in 10 years? What do you think people are going to use it for?

Development of interview questions by teacher candidates

The teacher candidates developed an extensive list of questions for both Grade 7 and Grade 8 students. It is possible that, due to the workshop being a face-to-face event, this opened things up for more intensive work and discussions on developing the research questions as opposed to the shorter lists from the other countries' teams. The questionnaires included questions on things that students learn in school regarding technology, challenges connected to technology use, and future perspectives.

The following are some of the questions the teacher candidates developed:

What tools/devices [digital technology] do you use in your schoolwork, at school or at home? Who taught you how to use them? How long [how many years] have you used digital tools/devices in school? What digital technologies have you used so far in your schooling?

In which subjects do you use digital technology [tools/devices]? How is it used?

Are there many variations between the teachers you have and how they use digital tools?

What is difficult about using digital technology?

Do you feel that your teachers use what you already know with regard to digital skills [technology], in school?

What challenges do you think will come up in the future with regard to digital skills/digital tools?

Do you think all school students have the same challenges when it comes to digital use? Why/why not?

What skills do you think you will use [need] in the future?

Do you have any thoughts about what you want to work with [in the future]/do in 10 years? How do you think you will use the digital skills you learn in school in 10 years?
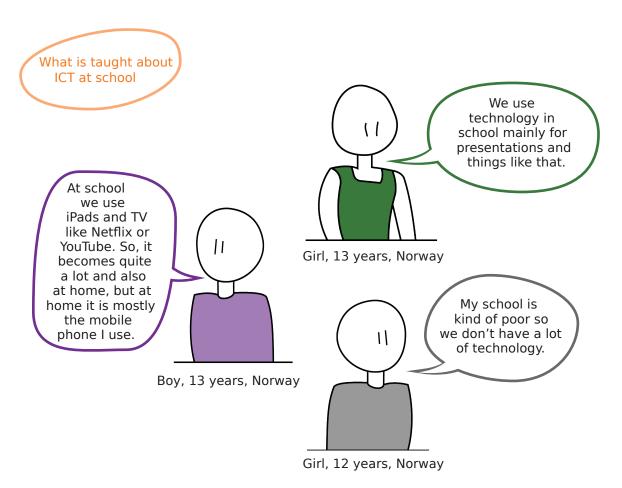
Do you think that schooling has so far prepared you for the challenges in the future? What would you like the school to teach you?

Core observations video workshop part II: Implementation of the interviews by children and young people and teacher candidates in Norway
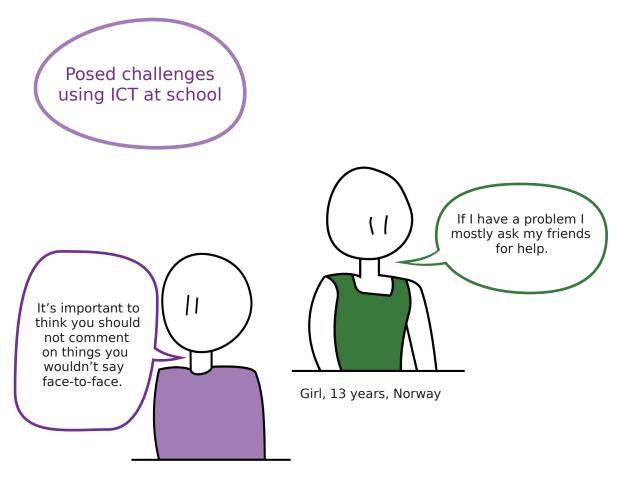
The interviews were very successful. There was quite a difference between the length of the interviews between the teacher candidates and the 8th graders, but in general, they went well. We had many participants and all of them wanted to be interviewed. Therefore, we had several rounds of interviews. We had six video cameras (in six rooms) on three different floors, so it was a lively day for all of those involved. The 8th graders' interviews of the 7th graders were typically between 10-20 minutes long and the interviews that the teacher candidates conducted were up to 45 minutes long.

After all of the interviews, we gathered the teacher candidates and the 7th and 8th grade students and had a debriefing session where they could reflect on the day and how they experienced being researchers and participating in research. All of the participants claimed they had enjoyed the day and that they had learned a lot. While it was a long day for everyone, including the researchers, everyone felt happy when they left and felt as though they were able to experience something positive in the midst of another impending COVID lockdown.
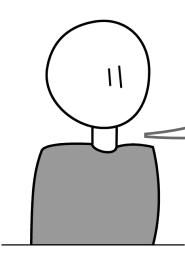
Perspectives of children and young people towards addressing what is taught about ICT in school

What is taught about ICT at school

We use technology in school mainly for presentations and things like that.

Girl, 13 years, Norway

At school we use iPads and TV like Netflix or YouTube. So, it becomes quite a lot and also at home, but at home it is mostly the mobile phone I use.

Boy, 13 years, Norway

My school is kind of poor so we don't have a lot of technology.

Girl, 12 years, Norway

Perspectives of children and young people towards addressing posed challenges using ICT

Posed challenges using ICT at school

It's important to think you should not comment on things you wouldn't say face-to-face.

Girl, 12 years, Norway

If I have a problem I mostly ask my friends for help.
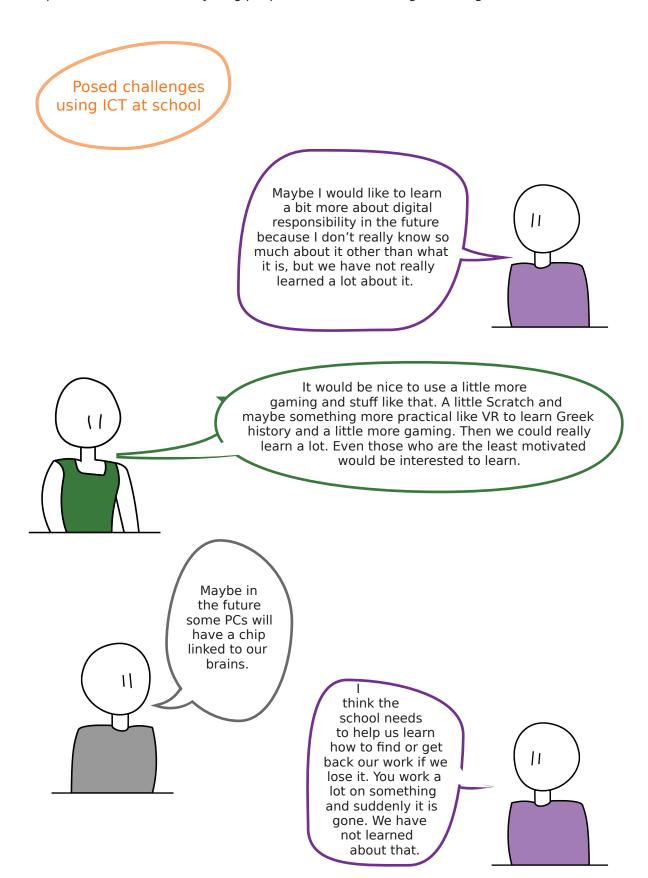
Girl, 13 years, Norway

Teachers are often not on Social Media and if they want to have a lesson about being bullied then they don't know how it is to be bullied on Social Media and they think it is just happening at school. There are kids that are bullied and they just don't know how it is because they have no experience on Social Media. The explanations from teachers are just like 'be nice to each other', but they don't understand.

Girl, 12 years, Norway

Perspectives of children and young people towards addressing future digital skills

Posed challenges using ICT at school

Maybe I would like to learn a bit more about digital responsibility in the future because I don't really know so much about it other than what it is, but we have not really learned a lot about it.

It would be nice to use a little more gaming and stuff like that. A little Scratch and maybe something more practical like VR to learn Greek history and a little more gaming. Then we could really learn a lot. Even those who are the least motivated would be interested to learn.

Maybe in the future some PCs will have a chip linked to our brains.

I think the school needs to help us learn how to find or get back our work if we lose it. You work a lot on something and suddenly it is gone. We have not learned about that.

Potential conclusions and implications from the video workshop in Norway for further DigiGen research

For the Norwegian research team, it was interesting to organise the workshops during one full day on-site instead of online. On the other hand, it would have been easier to conduct it online in different breakout rooms on Zoom, as this would have avoided the need to think about logistics, camera equipment, etc. Overall, the Norwegian research team found the workshop successful.

Still, it was a bit challenging to get the 8th graders on track in starting to develop the interview questions. By supporting them and giving them example questions, they eventually managed to put together a set of interesting questions for the 7th graders to answer.

It was also very fascinating to notice what the teacher candidates were able to discuss with the children in a way that the Norwegian research team was not able to do to the same extent. This particularly applied to aspects that had to do with digital responsibility issues and eliciting richer information about the topics. Their attitudes and experiences about online bullying, violence, and at-risk behaviour online, which were not discussed in earlier interviews with other participants in the same age group, were interesting and eye-opening for the research team. The teacher candidates managed to bring out some of these types of challenges and the students opened up about their experiences on the matter.

It was much appreciated and a nice experience for those involved as junior researchers. They were excited to participate and felt that their expertise was appreciated. For the 8th graders, it was also a good opportunity to discuss issues with peers their own age but from different schools and from different areas of the capital area.

3.5 Romania

Video workshop recruiting process in Romania

Participant recruitment was moderately challenging in Romania. Recruiting teacher candidates was accomplished with the help of National Stakeholders Committee members who reached out to their extended professional network and put the research team in contact with teachers working in the pedagogy-oriented departments in two urban areas in Romania. All teacher candidates were women, but they differed in terms of geographical location and their professional career track (two of them preparing to teach in primary school, the other two preparing to teach in secondary school).

Reaching vulnerable children proved to be particularly challenging, as COVID-19 restrictions made accessing those particular groups even more difficult. Several teachers who participated in the qualitative WP5 study were able to contact children and their parents for the video workshop. However, only girls were available for the task. Nonetheless, the girls differed in terms of socio-economic background and region (urban and rural).

Teachers or the research team sent consent forms to the parents, and the children's enthusiastic participation was ensured. Teacher candidates were excited about taking part in the workshop.
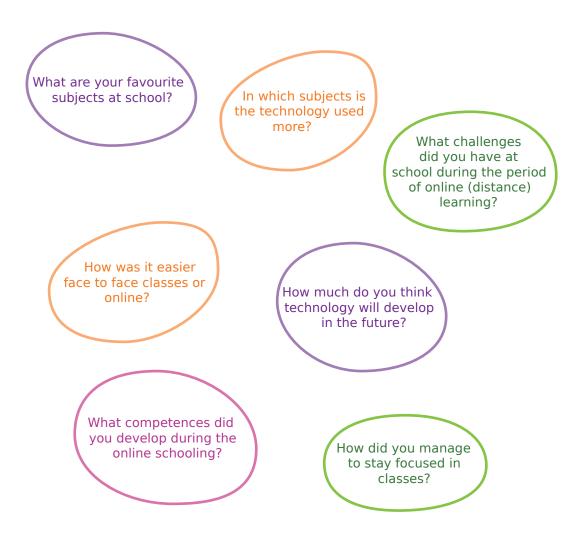
Video workshop setting in Romania

The video workshop, in connection with task 5.2, was conducted solely online in Romania at the end of October 2021 due to COVID-19 safety regulations in place at the time of the data collection. Although the workshop's structure suggested two consecutive days, it proved difficult

to gather all participants, children, and teacher candidates to converge on a common schedule on two days. Therefore, on day 1, we introduced all of the participants to each other, presented the aim and structure of the workshop, and formed the pairs. On the next day, the already formed pairs met individually at commonly agreed times on Zoom and recorded the sessions.

Core observations video workshop part I: Development of interview questions by children and young people and teacher candidates in Romania

Development of interview questions by children and young people

The children's group work (two children, 12 years old) to develop interview questions themselves was accompanied by a researcher to help when needed. This proved extremely useful, as children after the first transition are quite young in Romania (11-12 years old). The two girls were given instructions about the three topics of interest and were left to develop questions on their own. However, they were prompted by the research assistant to add supplementary questions to explore the topics in more depth. Two of the topics proved to raise more difficulties, i.e. the challenges related to digital technologies and future digital skills needed. It was particularly difficult for children to envision how a 4th grader would approach these questions. Some of the questions developed by children are presented below:

What are your favourite subjects at school?

In which subjects is the technology used more?

What challenges did you have at school during the period of online (distance) learning?

How was it easier face to face classes or online?

How much do you think technology will develop in the future?

What competences did you develop during the online schooling?

How did you manage to stay focused in classes?

Development of interview questions by teacher candidates

The teacher candidates developed substantially more questions than the participating children. Also, in the case of the Romanian participants, adapting the language to one that would be suitable for children aged 10-11 was the main challenge. The teacher candidates developed questions for all three topics. They asked questions about subjects taught in school, devices used for different subjects, learning styles, and the meaning of being successful at school. In terms of difficulties and challenges that children encountered, the participants developed questions about difficulties in access and use, but also difficulties in relation to specific school subjects. They also asked about perceived differences between children and on what those differences depend. The questions about the future of digital skills touched on practical aspects, but also on envisioning a future where robots would replace teachers:

What are your favourite subjects? What do you learn there? Why do you like them?

What are the topics where you can best apply digital resources? What are the most attractive?

What difficulties do you encounter in using digital resources for those subjects? (with examples). Are there any difficulties in access/use?

Do you think digital abilities make your life easier? In which aspects? (examples)

Does anyone help you with homework? Does anyone help you with using digital technologies for homework/school?

What does it mean for you to be successful at school?

Does anyone help you with homework? Does anyone help you with using digital technologies for homework/school?

In the future, teachers will be replaced by robots, how will school look like for you? Would it be a good idea? A bad idea?

Core observations video workshop part II: Implementation of the interviews by children and young people and teacher candidates in Romania
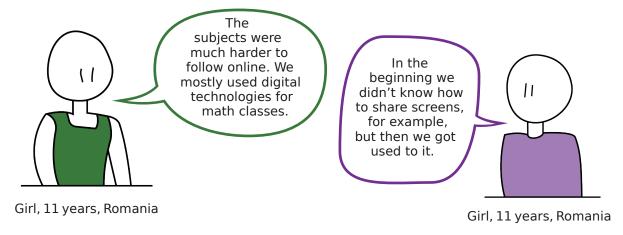
Conducting interviews and recording various breakout rooms went well. Three of the teacher candidates set up the Zoom interviews themselves and sent the links to the children (the research team helped one of them). The DigiGen researcher helped the two children playing the role of interviewer with setting up the Zoom interviews and recording. Reminders were sent to all participants prior to the scheduled times. As expected, interviews conducted by children took less time than those conducted by teacher candidates. Children gave various responses with regards to how digital technologies prepare them for future life in the digital age.

Perspectives of children and young people towards addressing what is taught about ICT in school

What is taught about ICT at school

All children reported using digital technologies only in relation to their distance learning or blended learning phase. When in school, there were times that only teachers were reported using digital technologies. With reference to the use of ICT for school, the use of tablet computers, desktop computers, laptops or smartphones, and learning apps was reported, e.g. Google Meet, Zoom, Classroom. Children mostly made references to applications and devices that teachers used during the distance learning phase.
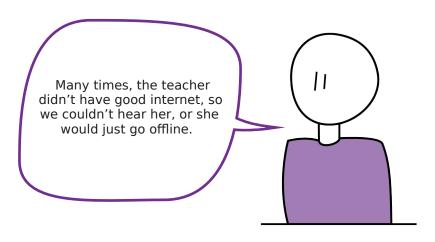
The subjects were much harder to follow online. We mostly used digital technologies for math classes.

Girl, 11 years, Romania

In the beginning we didn't know how to share screens, for example, but then we got used to it.

Girl, 11 years, Romania

Perspectives of children and young people towards addressing posed challenges using ICT

Posed challenges using ICT at school

The challenges posed when using ICT were mostly related to technical issues experienced when connecting or following the lessons online, e.g. problems with connectivity experienced by children or teachers, the teacher's microphone not being loud enough, not seeing the explanations, etc. Other reported challenges were related to parents not fully grasping the potential and usefulness of digital technologies. Some children reported enlisting the help of parents or older siblings in helping them with homework or technical issues, in addition to their teachers.

However, most responses were related to the COVID-19 situation, with children being forced into new learning situations, whether online schooling or "blended" learning. Some reported preferring face-to-face learning, while others reported being tired of wearing masks in schools and thus preferring the online classes. Some children complained about their classmates not paying attention during online classes, while others were grateful for the ability to concentrate better without the noise of an in-person, face-to-face learning situation.

> Many times, the teacher didn't have good internet, so we couldn't hear her, or she would just go offline.

Girl, 11 years, Romania

> My mother doesn't want to understand that some technologies can really help you. I mean, when she sees me with the phone and I have to write, she says… Or when I need to learn, for example, when I was learning for the French class, and I used an app, she left me on my own, she said "Fine, learn on your own!". And then, when she saw I received a 9 mark, she said "Ok, fine, apparently the technology helps you with something!".
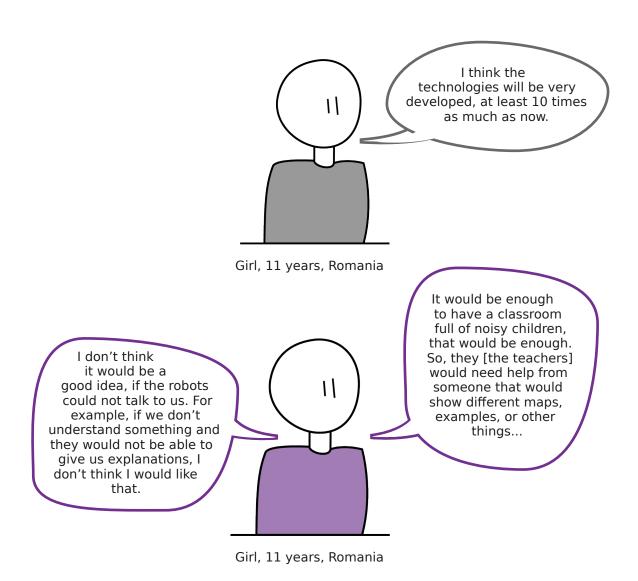
Girl, 11 years, Romania

Perspectives of children and young people towards addressing future digital skills

Digital skills required in the future

Children's and young people's responses regarding digital skills for the future that they want to learn included "to make little games online" (girl, 10 years, grade 4, Romania), and, "I just made one activity using Minecraft. There are still so many things that I don't know yet, but I will definitely learn them" (girl, 10 years, grade 4, Romania). However, one girl was sceptical about the usefulness of digital technologies in the future, saying "They won't necessarily make my life easier, I think I will lose a lot of connections" (girl, 10 years, grade 4, Romania). Children also tried to envision a world where robots would replace teachers.

Girl, 11 years, Romania

Girl, 11 years, Romania

Potential conclusions and implications from the video workshop in Romania for further DigiGen research

Overall, the video workshop method was well received in Romania by all participants, children and teacher candidates alike. The feedback was positive, especially from teacher candidates who expressed their willingness to further develop and implement the method in their training and future teaching methods.

With regards to integrating digital technologies in the lives of the most vulnerable children, there is still a significant amount of work ahead, especially related to creating and implementing national level policies ensuring that no child is left behind. Unfortunately, those most vulnerable are also those being left behind in Romania.

Throughout the workshop's entirety, the role of digital technologies was an ambiguous one. Some children seemed to grasp the potential, while others were more reluctant or sceptical, mostly due to the drawbacks and challenges they encountered.

4. Experiences and Implications within the Innovative Method of Video Workshops with Children and Young People for Further Research

Using video workshops in which children, young people, and teacher candidates develop their own questions which they then use to interview other children and young people represents a novel method in which children and young people act as co-researchers. While conducting the video workshops, a variety of implications for further educational research emerged. The main points that emerged are as follows.

The video workshop was very positively perceived.

Overall, the feedback was positive in all countries and the participants seemed to enjoy the experience. They felt that their expertise was appreciated. Also, even the participants (e.g. in Greece) who were shy found the experience very interesting. It was also a good opportunity for the children and young people (e.g. in Norway) to talk with their peers from other schools. The teacher candidates (e.g. in Romania) expressed their willingness to further develop and implement the method in their training and future teaching methods. The method has the potential to be expanded and possibly even implemented in teacher education training and as projects in university courses.

The video workshop requires a high degree of preparation and sensitivity on the part of the researcher.

The amount of preparation is comparatively high. Whether the video workshop took place online on-site made a difference. For instance, organising it online via a video conferencing system does not require camera equipment (as was the case in Norway).

In several countries, considerable differences in the duration of the interviews emerged. While children and young people conducted short interviews, teacher candidates conducted much longer ones.

The recruitment process during the COVID-19 pandemic presented challenges.

Specific challenges in the recruitment process can be identified in all five countries. This is important to keep in mind when conducting a video workshop. It also shows (e.g. in Greece) that children and young people, but also adults who are not familiar with research, do not feel quite comfortable and do not like to join in participatory and interactive activities, especially if the communication was only through digital media and without face-to-face interaction. Successful approaches or techniques could be to involve parents and teachers at an early stage and use personal networks.

Depending on the age of the children and young people, more or less support is needed in question development, decreasing with age.

Above all, the comparatively young age group of children and young people in the role of interviewers (e.g. in Germany and Romania) required a lot of support in question development for the interview guidelines. The children and young people in Norway also needed support

and sample questions to formulate interview questions, while the young people in Estonia, representing the latest educational transition phase and thus the oldest participants aged between 15 and 16, were more able to cope on their own. This aspect should be taken into account when preparing a video workshop.

Taking on the role of interviewer is more challenging than being interviewed.

Young people in Estonia indicated this was the case for them. Unlike interviews that adults conducted, when children and young people conduct interviews, care must be taken to encourage quiet or reserved interviewees to express themselves, creating a space where none of the participants feel put under pressure.

The video workshop has emerged as a beneficial method that reveals previously hidden aspects of how children and young people regard their education in terms of preparing them for future life in the digital age.

The posed questions (e.g. in Estonia) made young people think of new perspectives about which they had previously thought. They may not yet have such a broad understanding to be able to reflect on what digital skills will be needed in the future. Children and young people tended to think about what they would like to be able to do now. While in Estonia they would like to be able to use PowerPoint, Word, and Excel, in Germany, they would like to be able to edit videos and type on the computer. There is no reflection on and concrete link to digital skills considered important in adulthood. Beyond the beneficial aspect of having discussions among peers, interviewers and interviewees being attending school and thus, being subject-matter experts based on their lived experience, it was also a good opportunity to exchange perspectives from different schools, types of schools, and areas. Further, it was also found (e.g. in Norway) that the children and young people were able to discuss topics with the teacher candidates on which researchers had less or no information.

Overall, it can be concluded that the video workshop as a collaborative ethnography method is very advantageous with appropriate preparation. It could be used more often across Europe, if further developed in the future, to engage in research with children, young people, and teacher candidates as collaborators and co-researchers investigating ICT in education.

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