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Digital Natives or Naïve Experts? Exploring how Norwegian children (aged 9-15) understand the Internet.
EU Kids Online 2018

November 2018
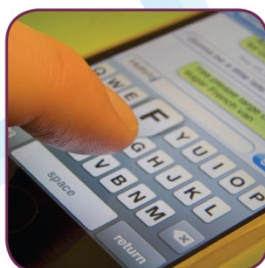
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This report explores how Norwegian children (aged 9-15) understand technologies and experiences relating to the Internet and digital media. The research is conducted to support the implementation of the country-by-country EU Kids Online survey in Norway in 2018.

CONTENTS

RELATED REPORTS

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Livingstone, S. Mascheroni, G. and Staksrud, E. (2017) **European research on children's internet use: Assessing the past and anticipating the future** *New Media & Society*. 20(3) pp. 1103-1122. https://doi.org/10.1177/146144481668593

Staksrud, E. (2013) **Children in the Online World: Risk, Regulation Rights**. London: Ashgate.

Staksrud, E., & Livingstone, S. (2009) **Children and online risk: Powerless victims or resourceful participants?** *Information, Communication & Society*, 12(3), 364-387 https://doi.org/10.1080/136911808026354

EXECUTIVE SUMMARY

In 2018, the Norwegian **EU Kids Online** team will implement a nationally representative survey to investigate how Norwegian children use the Internet. In preparation for this survey, a qualitative research project was implemented to explore how Norwegian children understand the Internet. We found that:

- While children were familiar with concepts that related to the Internet and associated technologies, they were not always able to practically implement the techniques that these concepts referred to.
- The children used a combination of technical concepts and more generic terms when talking about the Internet. They also both used and referred to the Internet in a range of multilingual contexts.
- The children understood that their use of the Internet was regulated by various permissions and restrictions. However, the extent to which they accepted this regulation varied.
- When considering how to act in risky situations, the children's deliberations were often context specific.

There is a gap between the extent to which children are familiar with concepts that relate to the Internet, and their ability to implement the practical skills these concepts refer to. They also lack a holistic understanding of the risks and opportunities that may be associated with their actions. This raises the question of how children can be supported to develop the skills they need to live good lives in a world that is increasingly mediated by the Internet (see also Livingstone, Mascheroni and Staksrud, 2017).

RESEARCH CONTEXT

Previous research undertaken by the **EU Kids Online** network indicates that Norway is a country where children use the Internet a lot. In 2016, 97% of Norwegian 9-16-year-olds were reported to own a mobile phone (91% of these were smart phones) and 64% to use one or more social media platform. Girls between the ages of 9 and 13 were more likely to use social media platforms than boys (Medietilsynet, 2017).

Norwegian children are considered to use the Internet in an 'independent' and 'sophisticated' manner. They encounter more online risks than other European children, but also have a range of coping skills (LSE, Online; Helsper, Kalmus, Hasebrink, Sagvari and De Haan, 2013).

At the same time, Norwegian children are understood to be vulnerable Internet users. Norwegian parents tend to prefer proactive parenting, were online exploration and socialization is allowed (LSE, Online). But parents also worry about the amount of time their children spend online, and the kind of content, or people they may encounter there (Staksrud and Livingstone, 2009; see also Livingstone, Mascheroni and Staksrud, 2017).

Children who use the Internet do so in a variety of socio-technical contexts, i.e. at home, in school or in other institutional and/or private contexts (Drotner and Livingstone, 2008). An increasing number of Norwegian schools now issue their pupils with iPads that are used for lessons, and in some cases for recreation, both at school and at home.

The Internet and the technologies and experiences that relate to it, have evolved significantly since the first international **EU Kids Online** survey was conducted in

2010 (cf. Livingstone, Mascheroni and Staksrud, 2017). The way in which children understand the Internet has also evolved. In a recent study in the Czech Republic, children did not understand concepts like 'chat room'; 'social media'; and 'blog' (Bedrosova, Machackova, Dedkova and Smahel, 2017, p. 6-12).

Given this research context, the Norwegian **EU Kids Online** team want to explore how Norwegian children understand the Internet in 2018.

METHODOLOGY

Employing convenience sampling, we visited three schools and one regional science museum in Norway between 1 March and 6 April 2018. At these locations, we conducted qualitative observation and semi-structured interviews with children aged between 9 and 15.

In total we observed 235 children during 30 hours of instruction. We interviewed 141 of the children (53 male and 88 female), either individually or in groups of up to 5. Each interview lasted between 5 and 25 minutes. Over half of the children were aged between 9 and 11 years old.

We aimed to observe and interact with children in environments where they were already engaging with the Internet and where they were comfortable expressing themselves. Access to our sample was voluntarily provided by teachers that participated in a Norwegian network entitled 'Lær Kidsa Koding' ('LKK' Teach Children Coding – https://kidsakoder.no/).

Table One provides an overview of our participants according to location, grade, age and gender.

Table One: Research Participants[1]

Location[1]	Grade	Age	Observed	Interview (M)	Interview (F)
SE	4th	9/10	41	15	9
SW	5th	10/11	96	22	35
SE	6th	11/12	39	7	22
SE	7th	12/13	29	7	13
N/A	8th	13/14	N/A	N/A	N/A
SW	9th	14/15	30	2	9
Total			235	53	88

The LKK network aims to ensure that all children have an opportunity to learn to code. Participating teachers are therefore interested in teaching coding. Consequently, most of the children we met had some experience of coding, in addition to using the Internet.

We observed children interacting with the Internet in quite different contexts. Our sample is therefore not balanced in terms of age, gender or geography, nor does it allow for comparison between different schools and locations.

The schools were located in the South-East of Norway, while the Science Museum was in the South-West of Norway.

Two of the schools we visited provide each pupil with an iPad for everyday use. The third school, by contrast, had one computer room that the children occasionally used. This room contained about 30 laptop computers that were shared by all of the pupils at the school.

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[1] Throughout the report, citations from the participants are numbered to indicate their location (i.e. SM Science Museum, S1 School One, S2 School Two etc.) and C1 – Child One, C2 – Child Two etc. This numbering system is used to indicate where the data was gathered, while at the same time protecting the privacy of the individual children and teachers involved.

At the science museum we observed five different groups of children attending the same introductory course to Micro:bit. At each of the schools, we followed one group of students across either one or two school days, observing their use of digital media in various lessons, including computer programming and digital competence classes, but also English, Norwegian and mathematics.

In spite of these different contexts, our research design and analytical approach allowed us to systematically explore some key aspects relating to how the children understand the Internet.

We focused our interviews with the children on the conceptual framework operationalized in the draft **EU Kids Online** questionnaire for 2018. We extracted the main concepts from the draft questionnaire and translated these to Norwegian. We organized these concepts thematically and used the themes to structure our observation and interview guide.

When interviewing the children, we discussed the concepts that were relevant to the practices they were engaging in. For example, when children were participating in coding exercises, our interviews initially focused on this theme and on related concepts. From there, where relevant and possible, we expanded our interview to explore other themes in the questionnaire.

Following Orr Vered (2008, p.26) we used follow-up questions like 'tell me more about', 'could you explain that', 'what do you mean by', etc. in order to access how the children articulated their understandings of the practices that they were engaging in and the concepts they used to discuss the Internet and digital media.

The children used a combination of technical concepts and more generic terms when talking about the Internet. For example, at the regional science museum, when we asked the children if they had previously worked with a coding program like Micro:bit, they replied:

> SMC11: No. I haven't in any case. I don't think I've done *anything like this*, *with these things*.
>
> SMC2: Mm, yeah, like, my little brother, he is *interested in it*, and, em and, he often gets *things like that* for Christmas, and then, then I can keep up, and so, *I have seen it*…
>
> SMC3: My big brother is interested *in these things* and has a bunch of *these things* he can work with.

At one of the schools we visited, when discussing using the search function on YouTube, we had the following conversation:

> Interviewer: What are you doing now?
>
> S1C1: I'm on YouTube. I'm trying to find music. Because I am not always able to find my favourite band.
>
> Interviewer: OK, and how, do you search for them on YouTube or what do you do?
>
> S1C1: Eh no, I just write here and, no, I try to find it.

The examples above show that while the children understand specific technological concepts, they employ both specific concepts and more generic terms when discussing how they use the Internet. Concepts like 'code', 'download', 'search', 'Internet', 'website', and 'app' are understood by the children. However, these concepts are not always part of the language they use to describe what they do.

We recorded our observations and interviews and took photographs at the locations we visited. This data was transcribed, coded and thematically analysed. Our analysis focused on identifying trends in our empirical material, as these related to the children's understanding of the Internet.

All of the children's parents or guardians provided informed consent to participate in this research project. The children were further informed that they could choose whether or not they wanted to participate during our visits, and that they could withdraw their consent at any stage. The children who did not want to participate were provided with alternative activities. The project and methodological approach were approved by the Norwegian Centre for Research Data (www.nsd.no).

In the next section, we summarize our findings.

CONCEPTUAL FRAMEWORKS

We present our findings according to five themes that relate to 1. Technical Expertise; 2. Social Media; 3. YouTube; 4. Gaming Communities; and 5. Programming. We focus our discussion on problematic aspects of the children's understanding of the Internet.

Technical Expertise

At each of the locations we visited the children were presented by their teachers and the adults with whom they interacted as 'digital natives', and even 'experts' (cf. Prensky, 2001). The children's expertise was compared to that of their parents, or of other adults they related to. At the first school we visited, the children were told:

It is actually you who know most, compared to Mamma and Papa. You know most. Some of you have Mammas and Pappas who maybe know as much (as you), but most of you know more than Mamma and Papa, about using an iPad and using websites, and about how we work with Classroom and Google Disk and all of this. You notice that you have to show them a lot of the time now, instead of getting help (from them). (S1: Teacher)

We observed the children tell their teachers about instances where they helped their parents or relatives to solve problems that they had encountered with the Internet or digital devices. At one of the schools we visited, two of the boys were considered by their teachers and co-pupils to be 'super-users'. These boys were interested in programming and practiced a lot at home. During class, they spent time going around and helping their fellow students.

Positioning the children as experts seems to motivate them to engage with and learn how to use digital technologies. However, as we will illustrate below, we observed that the children did not master all of the techniques that were required of them. Furthermore, this positioning raises an interesting dilemma in terms of how children, as experts, can access support from their parents, or other adults, who may have less experience with the specific technologies that they use. Although the children may be able to program games and devices and explore new applications that their parents have not had any experience with, they still lack a holistic understanding of the risks and opportunities that may be associated with their actions (see also Staksrud, 2013).

File Management

One example of a specific technique that the children struggled to master was file management. This was a challenge in all of the locations where we observed the children using Micro:bit. In order to programme a physical Micro:bit, the children needed to name the file that contained their programme. This file should then be downloaded to the relevant drive (that corresponded to the Micro:bit) on the children's computer. The children we observed were not used to saving and transferring files between applications in this way. They also found it difficult to explain what they had done with the Micro:bit.

Interviewer: Can you tell me what you did just now?

SMC4: Eh, what I did was that, first, I took this folder thing, and so placed it on, eh, it's a bit hard to explain…. We pressed different things, and drew them out, and stuck them together, and then we wrote in what we wanted it to do. Then we downloaded it, and then connected it to the Micro:bit.

In spite of their struggle to describe their actions, and their lack of experience with the technique of file management, the children understood the concept 'download', and the principle of transferring files from one location to another. It was the technique, rather than the concept, that they struggled with:

SMC5: Everything is broken – maybe we have to download it?
SMC6: She said that when it blinks it is downloading.
SMC5: Its broken.
SMC6: You have to wait until it is completely downloaded.
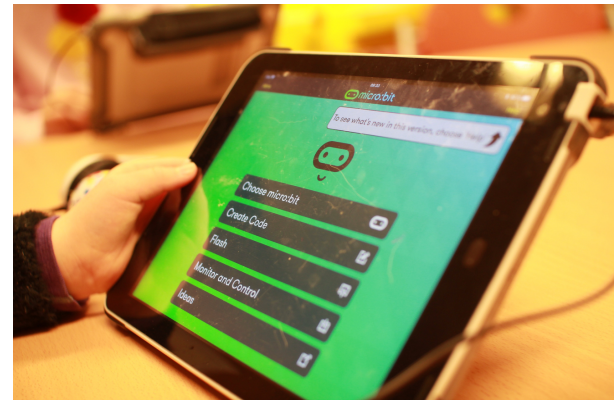SMC5: No – it doesn't work.

Image One: A child using the Micro:bit application

Password Protection

Another problem the children encountered related to the use of passwords to secure the data and devices that they used. In the schools where the children had their own iPads, they used both fingerprints and individual passwords to access their devices. They also had passwords to connect to both the educational platforms and the different applications that they used. The Norwegian Ministry of Education and Research has issued schoolchildren with an individual password that allows them to securely access some learning platforms. However, other platforms and apps require the use of additional and different passwords.

In general, the children struggled to remember these different passwords. In one school, it took 45 minutes to start up one morning because the children had forgotten their passwords. In another school, the children's passwords were automatically updated the night before they were to take a maths test. This change caused problems and delays when some of the children tried to access the test assignments.

Social Media

64% of Norwegian 9-16-year-olds are reported to have one or more social media profile (Medietilsynet, 2017). However, the children we spoke to, particularly those between the ages of 9 and 11, did not all have a lot of experience using social media.

A nine-year old boy at the first school we visited told us that he thought that only one other girl in his class had a social media profile. His older brother had a Facebook profile, but he was in the 10th Grade (aged 15-16). However, some of the children we spoke to, girls for the most part, had used platforms like Instagram, Snapchat and Music.ly.

Interviewer: Do use the internet at home or at school?
SMC7: Mostly at home.
Interviewer: And what do you use it for?
SMC8: Watching films or Netflix. I use YouTube a lot.
SMC9: I watch YouTube, I also have Music.ly and had Snapchat – but not anymore.
SMC10: I have Instagram where I let my family follow me.
Interviewer: You are about 10 or 11 years old, and you already have a profile on these platforms. Don't they have a 13-year age limit?
SMC11: Mamma says I can use it if I only follow the family.

In general, these children understood a range of concepts related to using social media, for example 'upload', 'download', 'share', 'friend request', 'post' etc. However, their understanding of these concepts, and the appropriateness of the actions related to them, was quite context specific.

In the first school we visited, we observed a lesson where the children were asked what they would do if a stranger asked them to send a photograph of themselves over the Internet. Most of the children's responses indicated that they would not to this.

However, on the following day, we spoke to two of the girls who had been in this class, about their use of the Internet. These girls, who were 9-10 years old, and knew it would not be appropriate to send a stranger a picture of themselves, talked about how one of them uploaded videos to the social media platform Music.ly:

S1C2: On Music.ly for example, there you can make videos and send them.
Interviewer: But are you allowed to make Music.ly videos and record them yourself?
S1C2: No. S1C3: Yes.
Interviewer: Yes? Are you allowed to make a video of yourself and upload it?
S1C3: Yes
S1C2: Not me.
S1C3: She has it on her mother's telephone.
S1C2: But I am not allowed to upload it.
…
Interviewer: And this, is this with the class, or the school, or is it broader than that?
S1C3: It is everywhere.
Interviewer: Everywhere, all of those who have Music.ly can see it?
S1C2: Yes, they can see it.

While these girls understand various concepts relating to uploading and downloading content, and to the relative openness of the platforms in which they are interacting, their deliberations about what they do when they are online, are informed by what their parents allow them to do. Music.ly has a 13-year old age limit, but the girl's parents – their mothers in this case – had different attitudes about whether or not they should be allowed to use it. These attitudes were central to whether or not these girls uploaded content to the platform.

At the same time, the children are aware of some of the risks associated with using these platforms:

S1C3: I was not allowed (to use Music.ly) in the beginning, but now, yes. But people can bully you in a way. Many people can bully, because last summer, have you heard about that? Last summer there was a lot of bullying on Music.ly. And that can happen on MovieStarPlanet too.
S1C2: And that is unfortunate.
Interviewer: Yes?
S1C3: Let's say, for example if you have it, they can say ugly things and things like that.
Interviewer: But is it only in certain apps that this can happen, or is it possible for it to happen no matter what you do?
S1C3: Eh, its….
S1C2: No, it's only on certain apps. Not all of them.

YouTube

Almost all of the children we spoke to used YouTube, both at home and at school. Both girls and boys used YouTube to watch music videos and short films. Our interviews with the children explored how they understood YouTube. We focused on understandings of general permissions and restrictions; content restrictions, including commercial content; and the function and operation of the platform.

Permissions and Restrictions

At the first school we visited, the children were not entirely clear about when and how they were allowed to use YouTube. Some children said that they were not allowed to use YouTube at school. Other children were under the impression that it was not a problem to watch YouTube when they had an allocated timeslot where they could freely use their iPads. Many of the children we spoke to also watched YouTube at home.

Interviewer: Are you allowed to bring that (iPad) home, after school?
S1C4: Eh yes, we are allowed to take our iPad home, but we have a rule that we are not allowed to watch YouTube.
Interviewer: You are not allowed to watch YouTube?
S1C4: No. We are not allowed. But em, during group-time (at school) we can watch YouTube, as long as it is not gruesome things that we are not allowed to watch at home, or something like that.

Content Restrictions

The children were also aware that some of the content that they wanted to access on YouTube was restricted. While they did not use the specific term 'firewall', they were aware that the restriction was based on certain criteria.

S1C4: But there is a restriction in terms of what I can watch, an age limit.
Interviewer: Oh, is there an age limit?
S1C4: Just that, eh, I don't think I can watch this one. No, I can't.
Interviewer: What does it say, something about age, can I see?
S1C4: It says this video is not accessible because 'restrict content' is activated.

When asked what kind of content they interacted with, some of the children reported that they used YouTube to listen to music, or watch famous YouTubers play computer games:

Interviewer: When you are on YouTube, what do you use it for, is it for music, or what?
S1C4: I often watch games, or there is my favourite singer. His name is Elvis Presley.
Interviewer: Yes.
S1C4: But he is dead now, but sometimes when we're at home I listen to him. Eh if not I sometimes watch games.
Interviewer: You watch games? ... What kind of games to you watch?

S1C4: I watch for example Minecraft, and I watch Roblox, and Fortnite. Those are the ones I watch.

...

Interviewer: Ok. So, you watch others who play? Is it better than playing?

S1C4: No. It's because I think it is fun, and they do funny things.

The teacher at this school told us that the municipal council had a firewall that restricted access to content relating to trigger-words such as 'sex' or 'naked'. However, in spite of this, we observed the children finding ways to access problematic, or restricted, content. For example, the children were not allowed to play the 'Fortnite' game at school, however, they could watch films of others playing this game on YouTube. We observed another child watching a film that featured a character from a popular game, *Pineapple Pen*, impersonating a terrorist and blowing up a truck.

While some children used YouTube to access content that was otherwise restricted, other children felt that their use of YouTube was being monitored by their teachers and considered this problematic.

S1C6: On the iPad, NAME OF TEACHER can see everything we do, whereas she couldn't on the Chromebook.

Interviewer: Ok.

S1C5: And that's not so bad, but I mean like, what if we watch something....?

Interviewer: Is it just the one teacher that can see that?

S1C5: No. All the adults.

S1C6: Except for our parents.

Commercial Content

In spite of the implementation of the firewall mentioned above, the YouTube application used by the children at school carried advertisements. The children were used to seeing these.

They were also used to receiving advertisements in their school Gmail accounts.

Interviewer: What about YouTube, when you watch that, do advertisements pop up when you are going to listen to music or watch films?

S1C5 and S1C6: Yes

S1C5: An ad came up just now.

S1C6: There are almost always ads before we watch a video.

S1C5: Otherwise there is a yellow stripe on a line to indicate that an ad is about to come.

Interviewer: Mm, and what kind of advertisements are there?

S1C5: They're like, eh, get a plant for 290NOK.

All: Laugh

Interviewer: And when that yellow stripe comes, do you click it away, or do you just leave it there?

S1C5: I press skip. It's boring.

In general, when we asked the children about pop-up advertisements, they were not familiar with this concept. They discussed advertisements in the context of their use of YouTube and Gmail. They were not too familiar with pop-ups on other websites.

YouTube Channels

Some of the children at the first school we visited told us that they wanted to have their own YouTube Channel. At the same time, they didn't really seem too sure about what this actually meant.

Interviewer: You told me just now that you have your own YouTube Channel. Is that true?

...

S1C5: We have our own YouTube Channel but we don't tend to..., I am not allowed to post things on YouTube at least.

Interviewer: Is it the same for everyone?

S1C5: Yes – everyone has a YouTube Channel, all those that have an iPad.
Interviewer: So, have you tried to post a video on YouTube before?
Child 1: No. I am not allowed.
S1C6: To do what?
S1C5: To post videos on YouTube.
S1C6: Not me either. Because my name would probably have to be there also.
S1C5: But you could have a nickname.

These children's discussion about whether or not they had their own YouTube Channel, and whether or not they used this, centred on what they were allowed to do. Their understandings of restrictions around use were linked to their privacy – i.e. they could not post videos to YouTube because their names would be connected to these videos. At the same time, the children consider some possible strategies to protect their privacy, like using nicknames.

Gaming Communities

Some of the children participated in gaming communities, such as Roblox and Minecraft. Our interviews with these children focused on how their use of these gaming communities was regulated and on how they understood their function and operation.

Permissions and Restrictions

The children were aware that Internet use was regulated in different ways amongst their peer-group. Some for example, were not allowed to play shooting games at home:

Interviewer: And what about when you are with your friends, do you sometimes play games on your iPad?
S1C7: Eh sometimes we play on the PlayStation, but em, Mamma has said that em, at other peoples' houses there are rules, and at our house there are rules. So, when I am at home, and when I get

visitors, I am not allowed to do the same things that they are allowed to do at home. But then, when I am at home at their place, I can do it.
....
S1C7: But not if it's shooting games or something like that. Then I am not allowed.
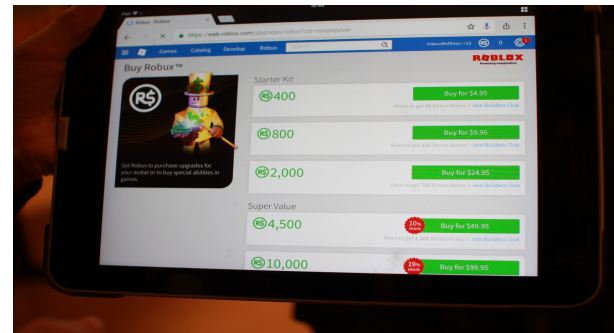
In-app Purchases

Image Two: The Roblox Application

Roblox is a large online gaming community, with reportedly over 40,000,000 games on its platform. In Roblox the children can have their own profile and engage with other players.

Roblox also provides subscription packages so that children can make in-app purchases. In this, and similar contexts, the children understood what it meant to be able to purchase something in an application. Some of the children's parents paid for subscriptions for their children, while others didn't. However, in more general conversations when we talked to children about in-app purchases, they thought we were referring to purchasing apps and downloading them from the iTunes or Android stores.

Interviewer: And in connection with Minecraft, ... when you play Minecraft on your parents' phone, are you allowed to purchase things in the app then?
S1C8: No. I don't think you can purchase anything in the app.
Interviewer: No?

S1C8: But you have to, you have to break things. So, if you click on something, eh, you get, you get that block, so you can use it to make more and more.
Interviewer: And what about, are there other games where you can make purchases?
S1C8: Where you can make purchases, em, yeah, in that Candy Crush game, there you can make purchases, but I don't do that.
Interview: No, never?
S1C8: Never.
Interviewer: So, have you ever tried to purchase anything on an iPad or a telephone?
S1C8: Eh, no I don't think I have ever purchased anything.
Interviewer: No ok.
S1C8: But my brother has purchased things in the games he has. But Mamma and Papa have allowed him to. But I really don't spend my money on games.

Socio-Technical Affordances

Some of the children we spoke to did not consider it problematic to interact with strangers in gaming communities. One child spoke to us about how he engaged in the FIFA gaming community using his Xbox. This child both enjoyed the game and talking to the other players that he met online. He told us that he had met some football stars while playing the game. He also used the game to practice his English-language skills.

Other children also talked about the fact that they interacted with people that they didn't know in multilingual contexts, when gaming:

Interviewer: Would you like to install more things onto this (iPad)?
S1C9: Eh no... Because the only thing I use this for is lessons and sometimes to watch YouTube, but I play shooting games, one game, the only shooting game I am allowed to play, that's a game

called Fortnite, and that is where I can speak to others. But then I normally talk to people in Japan, China and the like. They play often.
Interviewer: Yes ok but do you then speak English with them or how do you do it?
S1C9: Yes, sometimes I speak English with them instead.

In this regard, it was also interesting for us to note that in all of the locations we visited, we met children who came from a range of multilingual backgrounds. This influenced how the children understood and engaged with the application and programme interfaces that they used. Most of the children we spoke to preferred to use interfaces that had been translated to Norwegian (rather than English), while some stated that they would rather access an interface in their own language:

SMC12: I think it was a bit difficult, and I am not so good at Norwegian, so, I don't understand everything so well. When people say something, like my teacher, when she says something, I don't understand. So, I don't understand Norwegian so well.
Interviewer: Ok. So, there are a lot of technological concepts that you have to understand to use this?
SMC12: Yes
Interviewer: If it was in Arabic, would you have kept trying?
SMC12: Yes. I can read Arabic, so then I would have been able to understand it.

Creating Content and Programming

All of the children we observed were involved in creating interactive content. Most of the children coded using programmes like Scratch, Micro:bit and Sphero to create games and images. These children were more familiar with these applications than with the programming languages mentioned in the

draft EU Kids Online Questionnaire, such as Java, Python and C++.

At the Science Museum, the children were participating in an introductory class about Micro:bit. Many of them had not used a Micro:bit before. While the programme and set-up itself was new, we found it interesting to observe the conceptual framework they used to discuss their interactions with the Micro:bit:

Interviewer: Have you worked with programming before?
SMC15: Yes, not with Micro:bit, but with Kommando and Console.
Interviewer: Is it similar?
SMC15: Yes, it's about the same.

At the third school we visited, where the children did not use computers as part of their regular school day, they were also able to make these kinds of connections:

Interviewer: Have you done anything like this before?
S3C1 and S3C2: No
S3C1: Yes, we have played, not this kind of game, but we have played other games that are very like this.
Interviewer. Ok. And what were they called?
S3C1: Em, Scratch.

At this school the children programmed the 'Rock, Paper, Scissors' Game using the Micro:bit. However, when we asked them to describe how they had done this, they preferred to show us physically what they had done, rather than to talk about it using specific concepts.

S3C2: Look! We're playing Rock, Paper, Scissors.
Interviewer: Yes, I heard you. How did you do that?
S3C2: Em, we em, we can show you.
Interviewer: Ok.
S3C2: Look here. Wait now. Wait, wait.

S3C3: There, and then we found that.
Interviewer: Ok
S3C3: And when it stops blinking it is. ... there. And there we have rock, and then we have paper, and then we have scissors.

In addition to coding and programming applications, the children at two of the schools we visited used applications like 'Puppet Pals', 'Creaza' and 'Book Creator' to create books about themselves, their interests and their skills as part of their school-work. In these books they included photos, videos and sound files. They were familiar with concepts and icons relating to copying, pasting, cropping, editing and saving. Some of the photos they used were copied and pasted from internet sites. The teachers considered this unproblematic as these files were being used in an educational context. At the same time, the children were not familiar with the concept of a content-licence.

RECOMMENDATIONS

On a general note, we observe a gap between how the children understand and use linguistic concepts related to the Internet and their ability to implement the practical skills that some of these concepts refer to. For example, those we spoke to understood what it meant to download a file, but figuring out how do this within a specific programme or application proved more difficult. Similarly, they understood what a password was, but they found it more difficult to remember and use their passwords. This underlines the requirement for research that explores the difference between children's conceptual understandings and practical skills as these relate to Internet use.

We also observed that the children's understandings of appropriate actions to manage online risks, with particular regard to privacy protection, were quite context specific. They understood that they should not send photos of themselves to strangers on request, but in certain cases did not consider it problematic to upload videos of themselves to social networks, or to interact with strangers in gaming communities.

The children we met lack a holistic understanding of the risks and opportunities that may be associated with their actions. This raises the question of how children can be supported to develop the skills they need to live good lives in a world that is increasingly mediated by the Internet (see also Livingstone, Mascheroni and Staksrud, 2017).

With regard to the draft EU Kids Online survey and the specific concepts operationalised in that questionnaire, we recommend that 'in app purchases' and 'pop up' advertisements be explained and contextualised. We also recommend that the examples used to illustrate both gaming communities and programming languages be adjusted to include more current and relevant examples. In the case of gaming communities, Roblox, Fifa and Fortnite were used by the children that participated in our study. Scratch, Micro:bit and Sphero were examples of programming applications that the children were familiar with, and used to learn to code. They were less familiar with Python and Java, the examples currently listed in the questionnaire.

Finally, given the extent of the multilingual environments in which the children are engaging, it might be worth facilitating the translation of some of the key concepts operationalised in the final version of the questionnaire.

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