Rules of engagement: Family rules on young children's access to and use of technologies

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Abstract

This chapter reports on a study conducted in seven countries in which young children's (aged under 8) digital practices in the home were examined. The study explored family practices with regard to access to and use of technologies, tracing the ways in which families managed risks and opportunities. Seventy families participated in the study and interviews were undertaken with both parents and children, separately and together, in order to address the research aims. This chapter focuses on the data relating to parental mediation of young children's digital practices. Findings indicate that parents used a narrow range of strategies in comparison to parents of older children, primarily because they considered their children too young to be at risk when using technologies. However, children's own reports suggested that some were able to access online sites independently from a young age and would have benefitted from more support and intervention. The implications of the study for future research and practice are considered.

Introduction

Research on young children's digital lives conducted over the past decade has demonstrated that their engagement with technologies represents a significant change in the way children interact with each other and their

environments (Marsh et al., 2005; Plowman, McPake and Stephen, 2008; Rideout, 2013). These new practices reflect a 'participatory culture' (Jenkins, Clinton, Purushotma, Robison, & Weigel, 2006) in which many children create local, national and global links online with others and act as creators and not simply consumers of media texts. Yet despite the growing number of children aged eight and under who are accessing and using a wide range of technologies, little is known about how far parents mediate this use, or what responses children have to parents' interventions and rules that guide their use of digital technologies (Holloway, Green and Livingstone, 2013).

This chapter reports on a study funded and coordinated by the Joint Research Center of the European Commission (Chaudron et al., 2015) which aims to explore young children and their families' experiences with digital technologies such as smartphones, tablets, computers and games. The project involved seven countries: Belgium, Czech Republic, Finland, Germany, Italy, Russia and the United Kingdom. In each country, interviews and observations were undertaken with ten families in their homes, each with a child aged between 6 and 7, and many with younger and older siblings. The project sought to examine young children's access to and use of digital technologies and to explore how parents mediated this use.

This chapter reports on the findings of the study that relate to the rules that parents do, or do not, impose in relation to children's access to and use of technologies, reflecting on the effectiveness of parents' mediation of children's online practices, and their awareness of the risks/ opportunities balance. In addition, the chapter considers children's understanding and management of parental rules, analysing the kinds of negotiations they undertake with various family members that shape their engagement with technology. The chapter concludes with a consideration of the implications of the study for policy for this age group.

The study is located within the field of new literacies (Lankshear and Knobel, 2011) which is itself informed by New Literacy Studies (NLS) (Street, 1995). NLS identifies literacy as a social practice that takes place in situated contexts, in contrast to models that view literacy as a technical and neutral skill, such as those approaches embedded within school curricula. New literacies draws on key tenets of NLS, but emphasises the multimodal and multimedia nature of contemporary communicative practices. In the digital age, children draw on much more than alphabetic print to make meaning as they are engaged in reading, writing, designing and producing on screens of all kinds.

The study also is informed by the work of Bronfenbrenner (1979), who developed an ecological model of child development. He argued that

individuals exist within overlapping ecological systems that are 'a set of nested structures, each inside the next, like a set of Russian dolls' (Bronfenbrenner, 1979: 3). The first of these structures is the microsystem; this is the immediate environment in which the child or children under study are located at any point in time, which can be home, early years setting, community group and so on. The mesosystem links two different microsystems together, for example the home and classroom. The third level, the exosystem, involves contexts in which children are not active participants but which impact significantly on children's lives. For example, parents' workplaces might have an impact on parents' approaches to child rearing. Finally, the macrosystem is the larger cultural and social context that impacts on the way in which children live, such as the political system or cultural values of the society in which they live. In relation to the use of technology, Bronfenbrenner's model emphasises that attention should be paid to the inter-relation of a range of factors which shape individuals' engagement with technology. This includes their interaction with parents and siblings, which is the focus of the discussion in this chapter. In addition to being informed by new literacies and ecological model of child development, the study also drew on parental mediation theory (Clark, 2011), outlined in the following section.

Parental mediation of children's technology use

Research focusing on children younger than eight has established that digital technology is an important part of family life, with children's uses of a range of software and hardware shaped by family values. Ethnotheories are culturally-shaped systems of beliefs within families (Kenner, Ruby, Jessel & Gregory, 2008) and inevitably, these ethnotheories inform how parents mediate children's use of technologies (Marsh, Hannon, Lewis and Ritchie,2015: Plowman, McPake, & Stephen, 2008). The effects of parental mediation in turn impact on family values and ethnotheories. As Livingstone and Helsper (2008:582) suggest, 'Parental mediation both results from processes of family dynamics and child socialization and contributes to the shaping of family values, practices, and media literacy'.

Parental mediation theory relates to the way in which parents enable children's access to technologies, and then mediate their uses of it (Clark, 2011). Initially, the theory was applied to television and early studies suggested that there were three main types of parental mediation: restrictive mediation, instructive mediation and co-viewing (Nathanson, 1999; Warren, 2003). Restrictive mediation refers to practices which include restricting the amount of time children can view television, or only allowing specific programmes to be watched. Instructive mediation includes discussion about the content of programmes, which might be negative or positive in nature. Co-viewing consists of shared viewing, which might be undertaken for a variety of

purposes, including having fun. In a study of parental mediation of pre-schoolers' use of television, Warren (2003) found that most co-viewing was co-incidental and both restrictive and instructive mediation were more commonly found, with the greatest use being made of restrictive practices.

Whilst some studies have found similar patterns in relation to parental mediation of other technologies, such as videogames (Nikken and Jansz, 2006), there is evidence that a wider range of strategies are employed in

relation to parental mediation of the internet. Livingstone and Helsper (2008) identified four factors that characterised parental styles of mediation of the internet, in relation to the online lives of pre-teens, teenagers and young people: active co-use, interaction restrictions, technical restrictions, and monitoring.

Active co-use integrates the previous separate categories used for television, co-viewing and instructive mediation, and includes parents and children talking about internet sites and the rules involved with using the internet. Livingstone and Helsper (2008) argue that the very nature of co-use of the internet means that conversation is more likely to occur than when co-viewing television. Interaction restrictions are another specific feature of internet use, given the features of social networking sites that facilitate interaction. Technical restrictions include the use of firewalls and privacy settings and monitoring involves parents checking up on children and young people's use of the internet, either whilst present (over the shoulder) or through the use of the history feature of web browsers.

In a more recent study, Nikken and Jansz (2014) drew on data from a survey of 792 parents of Dutch children aged between 2 and 12 to develop a tool to assess parental mediation of young children's internet use, building on the categories developed by Livingstone and Helsper (2008). They found five styles of mediation that could be reliably measured: co-use (using the internet together); active mediation (e.g. helping children to understand what to do when being harassed online); restrictive mediation (general restrictions, such as time limitations); restrictive mediation (content restrictions, such as banning certain sites) and supervision (parents monitoring children's internet use when nearby). Nikken and Jansz (2014) found that parents did use antivirus programmes, but rarely used child-orientated safety features, such as time limiters. Mothers were found to engage in parental mediation strategies more often than fathers and those parents who went online less often than others were more likely to restrict their children's internet use.

Whilst the study reported in this chapter focused more broadly on young children's use of digital technologies, there was an emphasis on examining

how parents mediated children's use of the internet. Both aspects are considered in the discussion of the data.

Research design

In each of the seven countries that participated in the study, the original aim was to recruit ten families, seventy in total, who would be diverse in terms of children's ages and gender, ethnicity, family composition, and socio-economic status. Families were recruited that had children aged under 8, with at least one child who used a digital technology regularly, i.e. once a week. Each national sample was constituted to try as much as possible to provide variety both in terms of habits in the use of digital technology (distinguishing users of digital device in their frequency of use: 'low users', at least once a week; 'medium users' at least two or three times a week; 'high users', at least once a day) and in terms of family structures (including single parent families, families with an only child and families with siblings both younger and older than the target child). Across the seven countries, this diversity was achieved, although participation of families in low socio-economic groups was limited within some countries because the time constraints of the project meant that participants were identified through contact with schools that served more affluent communities. In other countries, sampling also took place via day-care or social services centres or through snowball sampling, which is a non-probability sampling strategy in which existing research participants suggest new participants based on their circle of existing contacts.

Whilst children aged 6-8 were the focus of the study, other children in the household also participated in interviews where this was feasible. Figure 1 indicates the range of ages of children who lived in the families that participated in the project.

Figure 1: Ages of children who lived in families that participated in the study
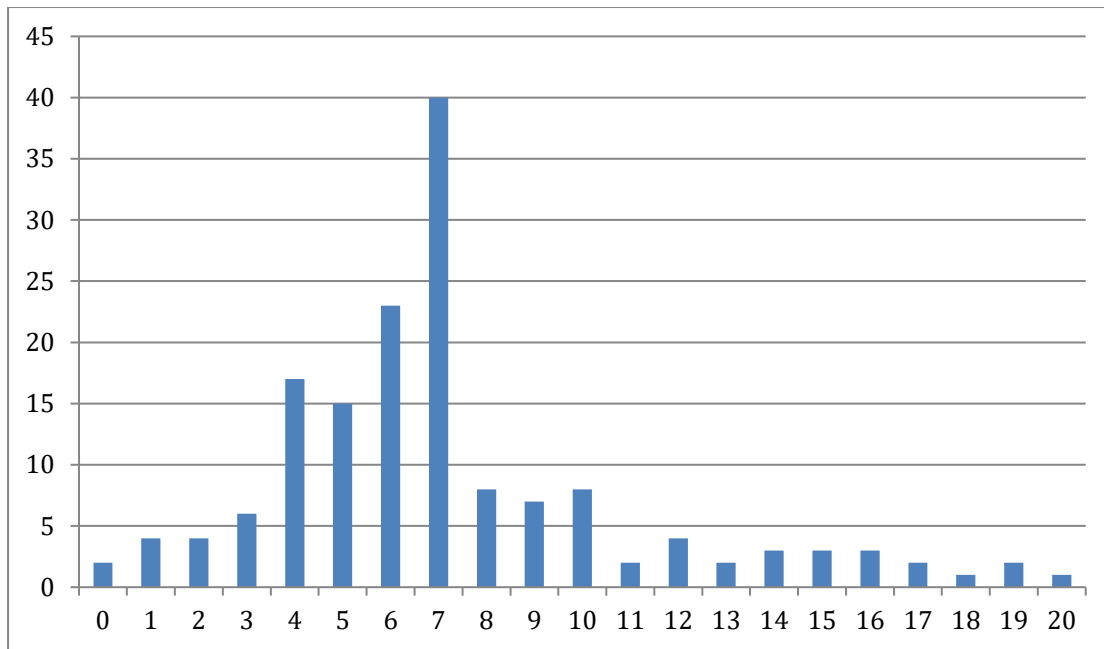
All interviews followed an observation protocol (see Chaudron et al., 2015), but because of the exploratory nature of the study, each research team had the freedom to adapt it according to specific interview contexts and needs (e.g. country, culture, family context, and so on). The interviews were conducted in the home of the participants, with the exception of one Belgian interview, which was conducted in the community service centre where the family was recruited.

The interviews generally had a common structure and were divided into four parts. A short family introduction took place in which the children and parents took part in a joint discussion. Subsequently, parents had a short interview with one of the researchers while a second researcher discussed digital technologies separately with the child/ children using age appropriate tools such as card games. A concluding session gathered the family back together, along with the two researchers, for a final discussion. In some interviews, a digital technology tour of the house was undertaken. All interviews were audio-recorded and, where possible, visual data were collected in the form of still images or videos.

Data analysis was undertaken utilising a thematic approach (Braun and Clark, 2006), based on grounded theory (Corbin and Strauss, 1998) in that an inductive approach was employed. The following codes emerged: type of technology/toys; time spent with technologies; property of technologies, who uses them, and where; activities of children and parents; game type (characteristics and notes), digital skills; favourite technologies; favourite offline activities; interconnection of online and offline; current perceptions; perceptions of the future; active mediation (behaviour and rules); perceptions

related to mediation (opinions about parenting and values). In the following sections of the chapter, we draw on the data to address in particular the following questions:

- What rules did parents have about children's uses of digital technology?

- What was parents' awareness of the risks/ opportunities balance in relation to children's uses of digital technology?

- What was children's understanding and management of parental rules?

Parents' rules about technology use

Across many of the families, rules were in place with regard to children's use of a range of devices. The emphasis was not focused primarily on the content of the devices, but on the times, places and situations in which they could be used. Rules regarding time were pervasive across all countries. In many families, screen time of all kinds was temporally restricted, either by limiting children to using technologies at certain times of the day (before or after dinner, for example) or, in some cases, using timing devices to ensure children stopped using the devices after a certain period. As has been found to be the case in previous studies (e.g. Lee, 2012), restrictive rules appeared to relate to concerns about media effects, with those who expressed the most anxiety about the use of media being most restrictive in terms of time. In some families, it was not considered necessary to set rules regarding time-use at all, as the children were viewed as managing this well themselves:

> *I know that in some families it is a given that, for example, you can play every day; but it is not like that in our family, because they do not use technology like that, so that we, adults, don't need to limit them; we feel that it is OK – in inverted commas – "the time spent using technology."*
> (Czech Republic, Family 5, Mother)

For a number of families, access to some technologies was more limited than others. For example, smartphones were considered more delicate and prone to accidents than other hardware and so, in some families, access to these was closely monitored.

Rules were shaped by parents' ethnotheories, and attitudes to digital technologies formed one aspect of this belief system. In many families across all seven countries, access and use of technologies was frequently used as a reward or punishment:

> *When he is allowed to play with the Smartphone and I catch him doing other things, I take it away from him. I try to keep the consequence connected to the cause. In my opinion, children have to recognise that doing wrong is connected to the penalty directly.*
>
> (Germany, Family 5, Mother)

Parents who adopted a more permissive parenting style were more likely to also adopt a permissive approach to media-use rules, and vice-versa.

Some rules were quite creative and idiosyncratic to families – in UK Family 3, a parent noted that, "*On Sunday the internet shuts down at 6 o'clock*" and the children are told that since the computers are all networked together, "*What you can see in your computer... I can see on mine*". In Italy, a family placed devices and controls out of reach of the children:

> *When they want to use the iPad and other technologies they have to ask us because they are located in places they cannot reach [laughing].*
>
> (Italy, Family 2, Mother)

In Italy, Family 2, two children (5 and 6 years old) owned an old smartphone with pre-installed games and connected to the domestic WI-FI network, but, in order to use it, they had to request their mother's battery because the smartphone had an old battery which no longer functioned. These various strategies all discouraged autonomous uses of devices.

Parental mediation was also affected by parents' own knowledge of, and confidence with, technology, as has been identified in previous studies (Clark, 2011). In Finland, for example, the father in Family 10 was a university-educated engineer, who worked in computing. He was able to set up technical restrictions and was also very aware of the potential hazards of internet use. It also appeared to be the case that parents who were not confident with technology themselves were sometimes stricter in terms of access to media, perhaps because they did not understand how to control its use.

Rules were rarely static; rather they appeared to evolve over time. They were often set up in response to problematic situations, rather than being a pre-planned strategy to minimise risks and maximise opportunities. For example, in Russia, Family 1, the mother reported that she set rules about use after noticing the negative effect of using devices on the son's behavior, commenting that, "*He was like a zombie*".

In some cases, parents differed in their attitudes to technology and, thus, had

different approaches to mediation. Fathers tended to be more laissez-faire or more involved in facilitating than restricting children's engagement with technology for fun. As was the case in Nikken and Jansz's (2014) study, mothers appeared more often to guide, manage, limit and control their children's use of technology, although a few fathers did undertake this role (e.g. UK Family 7). Because some children accessed technologies across a range of homes, either their own and grandparents' houses, or the different homes of divorced parents, they found rules differed across households in the same family. Grandparents tended to be more permissive in terms of use than parents, whilst divorced parents could set very different rules about the use of the same devices. Children appeared to navigate the differences across spaces with ease.

Other aspects of rules also seemed to be fluid in nature. Rules were often subject to negotiation, which was particularly the case for older children. Different rules were constructed for individual children within the family, in some cases. For example, some children were identified as being likely to use technologies more often than other children in the family, and so specific rules had to be set for them. In a few families, it appeared to be difficult for parents to stick to the rules, and they seemed overwhelmed by the challenge of mediating children's access and use of technologies. Rules would, some parents felt, limit their own use:

> *We don't have any strict rules about who will use technology and how. It would be difficult to follow …, the rules... it's not worth setting them up because we would ourselves be slaves.*

> (Czech Republic, Family 8)

There was evidence of the mediation strategy of monitoring (Livingstone and Helsper, 2008), or supervision. In many families, the computer used to access the internet was placed in the living room, so that its use could be monitored. For example, the mother in Belgium, Family 1 suggested that she did not feel the need to intervene too much in her children's media use because she felt that they did not have the urge to explore inappropriate content, yet, nevertheless, she sometimes passed by, "…*as unnoticeably as possible to check the site the children are on*". For other families, monitoring was more direct. The mother in Finland, Family 8, for example, spoke about how she could monitor her daughter's online play by viewing her phone at any time.

Monitoring takes different forms. In the examples above, monitoring took place through the practice of looking at screens to see what children are doing, either overtly or covertly. In some cases, monitoring took place through checking the game played, or sometimes through reading the game's review:

> *When I see that there is a game I don't like – some fighting – I tell him that we won't play. Because I'm trying not to make it aggressive for the kid... I come to have a look, what is there, if I don't like it, the game is over.*
>
> (Czech Republic, Family 9, Mother)

In other cases, parents could monitor sites accessed because children required help accessing sites:

> *They're both still at a point where they maybe have to check what the spelling is. So that's another way we're always checking, able to monitor what's going on. Although I would say when Gary gets to high school, he'll have his own room, he'll probably have his own computer in the room, and that's really where parental locks will be coming into play. At the moment, they don't – there's no need for it.*
>
> (UK Family 10, Mother)

Most parents appeared to be unaware of how easy it was to access undesirable content on YouTube if filters were not applied. For example, one parent suggested that there was no need to check up on their children as they felt that they could anticipate what would be available for them to see:

> *I no longer check on them [while they use YouTube], because we more or less know what they are doing... They go on the YouTube app... Luckily YouTube's account suggests for them what they already like. My account is now all about the Winx and My Little Pony, even when I access it at work [laughing].*
>
> (Italy Family 2, Mother)

This permissive approach was especially surprising when it became clear that parents did not always know how competent their children were at using technology:

> *If he logs in the open application and sees names and surnames of my adult friends whom he knows and communicates with, e.g. my best friend, he can freely type a message and send her kisses, smileys and so on from my account. Or he can get up early in the morning when I am still sleepy and call his granny. Several times he has taken pictures of his room and published them on my Facebook page. I logged in the day after he did this and saw a few comments from my friends like, 'Oh, Hey, Michail!'*
>
> (Russia, Family 1, Mother)

Livingstone and Helsper (2008) identified technical restrictions as one of the strategies used by parents of older children and young people. However, few

of the families in this study employed technical restrictions. Some used filters on smartphones but not on laptops and computers, or vice-versa, with very few reporting the use of filters on all devices. This was similar to the findings of Nikken and Jansz (2014), who reported that software intended to improve children's online safety was rarely used by the Dutch parents they surveyed. It may be the case that parents are unaware of the software, or do not feel that it is necessary to use it, given other findings about their perceptions of relative online safety.

The EU Kids Online project identified, in relation to 9-16 year-old children, that the more online opportunities children enjoy, the more risks they face (Livingstone, Haddon, Görzig and Ólafsson, 2011). Parents' general awareness of the risks and opportunities presented by the use of technologies varied across the families in the present study, as discussed below.

Parental awareness of the risks / opportunities balance

Parental mediation of children's use of technology is informed by their understanding of the risks and opportunities offered by its use. Although the majority of parents discussed risks associated with digital technologies, they seldom believed that these risks applied to their young child(ren), as they felt that they were too young to access inappropriate content online. However, in a few isolated cases, it was clear that children had occasionally accessed undesirable material.

The majority of parents did not appear to be concerned about contact and conduct issues, assuming that since their children did not appear to access online sites independently, these were not significant. In addition, scant attention was paid to commercial risks, despite some children reporting being able to download games without having to use passwords:

Child:	*I found the dog [app Talking Ben the Dog] and then there was something on top [of the screen] and then if you clicked there [on an icon that said 'free'] you got this game [app Talking Tom].*
Interviewer:	*So you first got the dog, then you clicked on the dog and that's how you got to Talking Tom [App]?*
Child:	*Yes.*

(Belgium, Family 6, Girl aged 6)

Families reported that free to download apps frequently include in-app purchases that can be accessed by young children, but parents may be unaware until they see the bill (as in Finland, Family 1). In a UK study of pre-school children's use of apps, parents reported that 1 in 10 children had

purchased apps without parental permission (Marsh et al., 2015). In a small number of families, parents actively managed the accounts for in-app purchases, such as keeping the password for the iTunes store secret, or concealing the password for the set-top box, in order to prevent children renting paid movies on their own. Unusually, Family 10 in Italy allowed their 7 year-old daughter to use the Apple Store password to download free apps, and the child did not abuse this trust by purchasing apps.

In contrast to this lack of concern about current risks, parents expressed fear about the future media habits of their children, especially when they became teenagers. The risks they identified for this imagined future focused on health (e.g. harm to eyesight), what they perceived as addiction to technology and a lack of social skills. This displacement of concern to some imagined future meant that very few parents reported actively using devices alongside their children in order to teach them safety strategies. Only in the few cases where children had been exposed to perceived risky or harmful content, such as violence or sexual content, did parents intervene and discuss the content with their children. For instance, the mother in Belgium, Family 1 saw her six-year old son watch a cartoon in which, according to her, one of the characters was being tortured. Her son did not seem to perceive the cartoon in the same way, however, and he found it funny. So, instead of forbidding her son to watch the cartoon, she attempted to explain her point of view with regard to its content.

Active mediation strategies took place in response to requests from children for help whilst they were trying to operate a device or play a game. Other instances of co-use were embedded within regular family activities, such as using Skype or Facetime to contact distant family members, parents and children sharing interests on YouTube and families using social networking products such as Facebook and WhatsApp. These activities provide opportunities for children to discern implicit rules with regard to the use of the sites and apps, even if parents do not teach such skills explicitly.

The opportunities offered by the use of technologies were appreciated by parents, who commented on the significance of technology for communication, for future schooling and employment, and for leisure. This led to positive mediation in terms of providing access to the technologies parents felt would be beneficial, but there was little evidence of positive parental mediation in terms of guidance to specific programs, apps, online sites and experiences, including educational sites. Indeed, one of the surprising aspects of the study was that children did not appear to use many of the devices for educational purposes, reporting instead widespread use of tablets and smartphones for games and social networking. This is in contrast to research with younger, pre-school children, which suggests that parents are keen to

purchase educational software and apps (Marsh et al., 2015; Plowman, McPake and Stephen, 2008).

Whilst there have been a few studies of parental mediation of young children's access and use of technologies (Nikken and Jansz, 2014), there are few reports of young children's responses to the rules and strategies imposed by parents. In the next section, reports made by children in this study on parental mediation are discussed.

Children's understanding and management of parental rules

The data from this study indicate that on the whole, children in this age group are fairly compliant with parents' rules and do not tend to challenge them. They know that if they are well behaved, they may receive a reward in terms of being allowed to use technology and if they are not well behaved, they may well be deprived of its use. In the Czech Republic, for example, a child in Family 1 stated: *"For example, when I am naughty, mummy forbids me to use the MP3 player for four days, until I behave in a nice way."*

Some children are unaware that rules have been set. The rules appeared to be internalised as a set of practices that are not experienced as constraints. For example, one girl (Italy, Family 1) hated videogames because she stated that they make you stupid, a view also espoused by her mother; a boy (Italy, Family 7) thought videogames could be used to relax yourself once in a while, exactly as his father had said during the interview. This normalisation of parental discourse may lead to the adoption of rules without further need for adult intervention.

In some contexts, children are not fully aware that parents are limiting their use of technologies. For example, they see changes in their tablet's configurations, discover that apps they like are no longer on their devices or that a device is not placed where it used to be, but they don't know why. Parental efforts to regulate their media use, in this case, are not understood by children and so they are less likely to be interiorised. An interesting example of this dynamic emerged during an ice-breaker activity with Italy, Family 6 when all the family was gathered together. The mother told the interviewers that she gave her son two old smartphones to play with, but changed her mind about this because of his behaviour. At that point the child stated, "*I cannot find them anymore*", as if it was his responsibility, but his mum had hidden the smartphones and not told him until that precise moment.

Children in general had an understanding of how parental rules were age-appropriate, recognising as legitimate that older siblings could do more, use different devices or play different games because they were older, even

though they might complain about this on occasion, or lack understanding of the full extent of their siblings' practices:

Child:	*[At home] we are not allowed to use Facebook. Only the oldest ones (...) I have four brothers and a very big one, he is 20, I think. He is all the time on Facebook. But we [younger children] cannot go on Facebook.*
Interviewer:	*And do you know what Facebook is?*
Child:	*There you can find a girlfriend and look at pictures. And then you can choose which girl you find the prettiest...And you can fall in love and then the girl doesn't know that. And then he is sending [text]. Then the girl knows. And then they send to each other.*

<div align="center">(Belgium, Family 9, girl, aged 7)</div>

There were some exceptions to the general compliance, from children who did overtly attempt to get around rules:

I am very cheeky around [the] Nintendo...I always try to get [the] Nintendo at snack time. Sometimes I try and sneak [it] in under the table.
<div align="center">(UK, Family 2, boy aged 5)</div>

Technical restrictions (e.g. passwords) were easily bypassed by some of the children without their parents' awareness. For example, one of the mothers outlined how she ensured that her children could not access devices independently, as she protected devices with passwords. However, one of her six-year-old twin daughters entered the password for the family iPad when asked by the researcher to demonstrate her use of the device. Her mother was surprised to see her on the device when she entered the room, and the child blamed her mother for revealing the password when she herself used the iPad:

Mother:	*How did you get on to that?*
Child:	*I don't know.*
Interviewer:	*She put a password in.*
Mother:	*Oh! Have you...?*

Child:	*It's straight up the middle.*
Mother:	*So you figured it out. Right, we've got to change that again now.*
Child:	*Well it's your fault 'cos you're, like, showing us.*

(UK, Family 5, Mother and girl, aged 6)

It tended to be the older children, aged five and above, who were able to challenge and resist parental rules in this way; younger children were more compliant. Finally, there was evidence of child-to-child mediation of technologies, with older siblings sometimes being given the role of monitoring young children's access and use. A number of the older siblings were protective of their younger brothers and sisters and appeared to realise that some content was inappropriate for them.

Conclusion

This study has provided a range of significant insights into the parental mediation of young children's use of technologies and online activities. Parents appeared to use a narrow range of strategies to mediate their children's digital practices due to their feelings that their children were not at risk. Parents tended to think that they would only need to actively mediate children's online use in the future. However, this appeared to be misguided, given that children demonstrated a wide set of digital competences and some were obviously able to access the internet without the direct supervision by their parents. In addition, children would have benefitted from more active involvement by parents in their choice and use of media – parents could helpfully support young children in accessing good quality material online.

The study has also highlighted how children themselves either did not notice the strategies used by parents, or accepted them passively, which can be attributed to their young age. As Bronfrenbrenner's (1979) ecological model indicates, children are influenced by a complex set of practices that impinge on their everyday contexts and in this study, the impact of the micro, meso and macro-contexts on their digital practices could be traced. Further, the data indicate the new literacy practices associated with digital technologies are situated in specific contexts (Lankshear and Knobel, 2011) and cannot be understood fully without paying sufficient attention to children's own perspectives.

The study has a number of implications for further research. Very little is known about how young children develop an understanding of online safety matters. Further studies are needed which explore this issue in depth, utilising

participatory methodologies that place the child's voice and agency at the heart of the research project (Sefton Green, Marsh, Erstad and Flewitt, 2015). There is also a need to undertake further research on the parental mediation strategies employed by families dispersed in some way, such as by divorce, given the complexities thus experienced by children as they attempt to navigate two domestic arenas. In addition, longitudinal studies are required that trace individual children and families over time, as this would enable the gradual changes and developments in parental mediation and its effects to be studied.

The study also has a number of implications for policy in the area. Previous studies have indicated that most children undertake a range of activities across a typical day, with technology playing as one, albeit important part (Marsh et al., 2005; Plowman, McPake and Stephen, 2008). The present study confirmed this. However, whilst many parents did manage effectively children's access to a range of screens, some parents did not maintain boundaries and seemed unsure of the strategies they could adopt to ensure that children did not over-use technology. Guidelines could be provided for parents on the positive ways in which children can be encouraged to integrate digital with non-digital activities. These guidelines could be offered by health visitors, pre-school practitioners and the mass media.

Second, given the lack of understanding many parents demonstrated on how to use filters and software that are designed to protect children online, guidelines could be provided at an early stage in a child's life, before he or she has access to the internet, and such guidelines could offer basic advice on the use of safety settings, passwords, privacy protection and content filters. Parents would also benefit from the provision of guidelines on communication strategies that could be used to talk to young children about managing online risks. As above, such guidelines might be best distributed by both professionals who come into contact with parents who have young children, and by the mass media.

Finally, the study has implications for guidance on positive parenting in relation to the use of technology. Many parents recognised the positive value that technologies had in their children's lives, but did not necessarily have sufficient knowledge to point their children to valuable resources, such as high quality apps and websites. Support could be offered for parents in this area, in order to ensure that they can offer their children appropriate scaffolding . Not to do so runs the risk of children failing to maximize the opportunities presented to them in their future digital lives.

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