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## Mediation of young children's digital technology use: The parents' perspective

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### Abstract

*The present-day reality that young children use digital media has forced parents to balance the risks and opportunities of the content that their children may encounter online. Current studies have mostly been quantitative. They have mainly focused on children aged 9 and older, and have addressed the types of mediation that parents use. However, they have not considered their relation to specific risks and opportunities. In the present study, we have sought to address this discrepancy and to understand the mediation strategies that parents use to shape the online experiences of their children. We focused on the factors that play a role in these mediations of specific risks and opportunities. In-depth semi-structured interviews with the parents of children aged 7–8 and their siblings in the Czech Republic (N=10 families) were conducted in 2014. A thematic analysis identified three main themes: (1) Mediation strategies of technology usage in relation to the mediation of online opportunities and online risks; (2) Time and place management of mediation strategies; and (3) The child as a co-creator of mediation strategies. Our results indicated that parental mediation is a dynamic process that is co-constructed by the parents and children according to context.*

**Keywords:** Mediation strategies; online opportunities; online risks; thematic analysis; children

### Introduction

Most children of the current generation grow up in media-rich homes. Media are present in the majority of households and new technologies, such as tablets and smartphones, have emerged in Euro-American contexts. As indicated in a systematic review of European research (Ólafsson, Livingstone, & Haddon, 2013), most research on children and digital media has focused on children aged 9 and above. However, due to the recent, rapid adoption of touch-screen devices most children use digital media and the internet at an earlier age (Findahl, 2013). Even children aged 3–4 use electronic gadgets and are avid users of technology (Ofcom, 2014). However, children are substantially influenced by their parents and their daily practices. Parental mediation is defined as the parental management of the relationship between children and media, including simple restrictions, conversational and interpretive strategies, and parental monitoring activities (Livingstone & Helsper, 2008). Parental mediation is a key factor in the online lives of young children; however, there is a dearth of research on the parental mediation of young children (Nikken & de Haan, 2015; Shin & Huh, 2011) and we do not know how parental mediation is related to specific risks and opportunities. We also lack a greater understanding of the role of children and their characteristics in the mediation process. Consistent with the new sociology of childhood (Christensen & James, 2008) we consider the child as an active subject who is not only formed by the system of family and exogenous factors, but also plays an active role in the construction of the family and its environment. Children are not passive recipients of parental mediation. They can influence the approaches by which their

parents regulate their activities (Prout, 2008). Therefore, in the present research, we sought to understand how parents mediate the online experiences of young children in the family context, what is the role of the child in the mediation, and how parents mediate specific online risks and opportunities.

## **Young Children's Online Experiences**

To understand parenting in the digital age, it is necessary to understand young children's online behavior because the activities that children engage in with digital technologies can lead to experiencing different kinds of outcomes. Findings related to negative experiences and outcomes (i.e., risks and harm) show that children's technology use can be associated with content risks (e.g., seeing upsetting pictures), contact risks (e.g., receiving unwanted messages from strangers), and conduct risks (e.g., online aggression) (Livingstone, Mascheroni, & Staksrud, 2017). Positive experiences and outcomes (i.e., opportunities and benefits) can also be divided into the same broad areas: content (e.g., learning new information), contact (e.g., enhancing social competencies), and conduct (e.g., identity expressions).

The risks and opportunities for adolescents and youth are well-documented, and to some extent also for the population in middle childhood. There are wide national studies for these ages in the United States (Youth Internet Safety Survey, ages 10-17) and in Europe (EU Kids Online II and III, ages 9-16). They focus on the prevalence, related factors, associated risks and opportunities, and coping strategies for selected online activities. Research on younger children and their use of digital technology is more scarce and has only recently begun to expand; for example, recent research in the USA focuses on the role of media in children's development, especially in the context of education (e.g., Blackwell, Lauricella, & Wartella, 2014). However, most research has mainly been published in descriptive research reports (e.g., Chaudron et al., 2015; Rideout & Katz, 2016) or in reports that have a dominant focus on preschoolers (e.g., Marsh et al., 2015).

Research findings indicate that preschool children (Marsh et al., 2015) and children around 7 years old (Chaudron et al., 2015; Nikken & Jansz, 2014) are engaged in more limited online activities and thus are exposed to different risky situations than the older population – such as different content that is evaluated as uncomfortable, or commercial risks. Children aged 8 and older progressively expand the range of their activities in comparison with younger children (e.g., they start using social networking sites, play online games; Ofcom, 2016), which may lead to experiencing more varied risks as well as opportunities. New activities that children engage in represent unique experiences for children to cope with, but also pose a challenge for the whole family, which must dynamically react to the children's development.

## **Parental Mediation**

According to Youn (2008), parental mediation is a form of parental socialization because parents, as the primary socialization agents, influence their children's behaviors and attitudes to become more competent technology users. We defined parental mediation above as parental management of the relation between children and media in line with Livingstone and Helsper (2008). Parental mediation could also be seen as a "specific" or "new" type of parenting. However, many different classifications of parental mediation have been formulated in previous studies (such as Nikken & Jansz, 2014; Zaman, Nouwen, Vanattenhoven, de Ferrerre, & Van Looy, 2016; Livingstone, Ólafsson, et al., 2017).

The first studies of parental mediation in children's television viewing identified three main types of parental mediation: active/instructive mediation, restrictive mediation, and co-viewing (Nathanson, 1999; Warren, 2003). Based on previous classifications, Livingstone and Helsper (2008) created four widely-used mediation types specifically for the mediation of children's digital media usage: active co-use, technical restrictions, interaction restrictions, and monitoring. The active co-use category suggests that sharing the media is more active when the child uses the internet than when they watch television. It refers to behavior in which the parent is sitting near the child and talks to them about the online activity. Co-use also involves restrictions associated with the communication of personal information online, shopping online, completing forms, etc. These restrictions are included in this category because parents can explain and enforce such restrictions during co-use. Diverse restriction strategies were divided into two different categories: technical restrictions and interaction restrictions. The interaction-restriction category is associated with the prohibition of contacting others (e.g.,

using e-mail, chat, game playing). Technical restrictions represent the installation or use of software that, for example, filter content and prevent access to some websites. The last category, parental monitoring, is connected to checking the child's activities after the child's use of the internet, either covertly or overtly (Livingstone & Helsper, 2008).

The previous research on the styles of parental mediation was mostly carried out among families with children 9 years old and older (i.e., Haddon, 2015; Talves & Kalmus, 2015). Research on families with younger children is more scarce. Research on the mediation of younger children was carried out by Nikken and Jansz (2014) with Dutch parents of children aged 2 to 12. The authors revealed the following five mediation styles: co-use (e.g., using the internet together); active mediation (e.g., helping children understand what to do when being harassed online); restrictive mediation of access (e.g., general restrictions, time limitations); restrictive content-specific mediation (e.g., banning certain sites); and supervision (e.g., parent's monitoring of their children's internet use when nearby). The authors identify supervision as a new mediation in the context of online behavior. In contrast to Livingstone and Helsper (2008), Nikken and Jansz (2014) did not find monitoring the child's activities after the child's use of the internet to be a distinct type of mediation. They hypothesized that this kind of mediation applies more to older children.

Zaman et al. (2016) carried out a qualitative, mixed-method study in Belgium that included 24 Flemish parents and their 36 children, aged 3 to 9. They investigated the strategies the parents used to mediate their young children's media use and what contextual factors influenced the parental mediation practices. They identified the following parental mediation practices: restrictive mediation, participatory learning involving co-use plus active mediation, and distant mediation. Restrictions of activities in terms of time, device, content, location, and purchase were found. Two types of co-use emerged in the data when parents behaved as helpers or as buddies. Parents behaving as helpers guided their children when they learned how to use the medium or when problems with usage arose. Parents as buddies shared some media activities with their children purely for enjoyment. Active mediation included discussions between the parents and their children. The distant mediation included "deference" when parents decide not to intervene and to respect the autonomy of their children, and "supervision", which is associated with situations where the parents allow their children to use digital technology independently but under close parental supervision.

Zaman et al. (2016) also revealed several external and internal contextual factors that are associated with parental mediation. Situational factors were related to weather, family composition and schedule, social contact, the disposition of media devices, and the architecture of the house. Internal factors were related to attitudes, digital media, health, and parenting. The authors describe how parental mediation is changing in relation to the contextual demands that evolve over time (such as the popularity of devices) or vary between locations (such as less strict rules in the car).

In the present article, we follow this line of research on the situational factors of parental mediation. We aim to develop an understanding of specific parental mediations in relation to online opportunities and risks in the family context.

## **Factors Associated with Parental Mediation**

Recent research has discovered several factors that are associated with the parental mediation of technology use. On the individual level, studies have indicated that parental mediation can be related to demographic variables, such as the age and gender of the parents (Kirwil, Garmendia, Garitaonandia, & Martínez Fernández, 2009; Sonck, Nikken, & de Haan, 2013); the parents' education (Kirwil et al., 2009); the age and gender of the children (Eastin, Greenberg, & Hofschire, 2006; Livingstone & Helsper, 2008); the household socioeconomic status (Livingstone & Helsper, 2008); and the family size (Sonck et al., 2013). Parental mediation is also associated with the parents' perceptions of their children's digital skills (Livingstone, Ólafsson, et al., 2017); the level of the child's (Lee & Chae, 2012) and the parents' media literacy (Mendoza, 2009); the level of the parents' digital skills (Livingstone & Helsper, 2008); the child's motivation to use media; the frequency of media use in the family (Lee & Chae 2007; Livingstone & Helsper, 2008); and the parents' views on the various effects of media content on their children (Sonck et al., 2013). On the socio-cultural level, studies have indicated that parental mediation of their children's internet use is affected by the culture of their country (i.e., countries' individualistic

or collectivistic values; Kirwil, 2009) and their country's level of welfare (Kalmus & Roosalu, 2012). These studies focused on factors associated with parental mediation and they were based on investigations within families with children aged 9 and older.

The other relevant factors for families with younger children were investigated even less. One project researched 896 Dutch parents of children under 7 and investigated which factors on both the side of the child and the parent characteristics predicted mediation by the parent (Nikken & Schols, 2015). The authors revealed that children's media use is predicted by the children's skills to use the media and the age of the child. Furthermore, parental mediation strategies depended on the parents' attitudes toward media. Finally, the authors revealed that mediation strategies varied among families with infants, toddlers, preschoolers, and early-childhood children. The study indicated that parental mediation was also associated with the children's media skills and media activities.

## Research Goals

As we explained above, our research assumed that the child is an active subject in the family system and that the child plays an active role in the process of technology mediation. The role of young children in the mediation process has not been sufficiently investigated in previous research and we aim to fill this gap with our research. In our investigation, we focus on the mediation strategies that parents use to shape the online experiences of 7-8-year-old children and we investigate the parental mediation of specific online opportunities and online risks for young children. We sought also to understand the situational factors that play a role in the parental mediation of technology risks and opportunities, and the active role of the child from the perspective of the parents.

## Method

### Participants

The sample consisted of 10 families from the Czech Republic ( $N_{\text{mother}} = 8$ ,  $N_{\text{father}} = 6$ ,  $N_{\text{children}} = 21$ ) who had at least one 7-8-year-old child ( $N = 10$ ,  $M = 7.5$  years  $SD = 0.39$ ) who used a tablet, PC, or smartphone at least once a week. The parents' ages ranged from 35 to 41. For detailed information see Table 1. Seven families had two parents; three had a single parent (a mother); and one family shared their household with a grandfather. All of the parents were Czech. Their education ranged from vocational to university level. The income of the families also varied from under half of the national median to above the national median. All the families had PC/laptops, smartphones, and mobile phones in the household. Seven families owned at least one tablet. The children had access to these devices. Some children had possession of their own devices (specified in Table 1). Within this research, we analyzed data from interviews with parents.

### Procedure

Our research was part of a research project called "Young Children (0-8) and Digital Technology" carried out by the Joint Research Centre, Institute for the Protection and Security of the Citizen (see Chaudron et al., 2015). The present research is based on a more detailed re-analysis of the data collected in the Czech Republic only. Individual face-to-face interviews — separately with the parent(s) and separately with the child/children — were carried out from September 2014 to October 2014. Interviews took place in the home of the participants. The semi-structured interviews with parents were between 35 and 85 minutes long (60 minutes on average). Parents were interviewed about four main areas: (1) devices employed, activities, and skills; (2) parental mediation; (3) family rules about technology usage; and (4) the parents' perceptions of new technologies and parental concerns of technologies. The interviewers used an interview guide to follow questions and observation protocol as developed by the Joint Research Centre (for detailed information, see Chaudron et al., 2015).

To find participants, six primary schools in the South Moravia region were sent a request to forward invitations for participation to students of second-year classes, which were then delivered to parents. Approximately 350 invitations were distributed in this way. Thirty families registered to participate in the study and interviews were

subsequently held in 10 of them. Families were chosen to create a variable sample – in order to have two- and one-parent families; to have families with one and more children; to have families with child/children who owned a device on their own etc. The parents received gifts for their children provided by the Joint Research Centre and 1,000 CZK (approximately 37 EUR) for participating in the research (the national median monthly income for a two-member family is 24,000 CZK, approximately 888 EUR).

All of the participants were informed about the purpose of the research and they provided written informed consent. The study received ethical approval from the European Commission. For more information, see the general report from all seven countries (Chaudron et al., 2015).

Table 1. *Detailed Description of Participants.*

Family code	Family income	Family members*	Devices (at least one) in household**	Participation in interview	Age (years)	School grade/Highest level of education
<b>C1</b>	Below half of the national median	Mother	<b>Tablet</b>	Yes	35	Apprenticeship
		<b>Daughter</b>	<b>Smartphone</b>	Yes	7	2 <sup>nd</sup> grade
		Son	PC/laptop Mobile	Yes – passively	1	-
<b>C2</b>	National median	Father	Tablet	Yes	37	University
		Mother	Smartphone	No	39	University
		<b>Son</b>	PC/laptop	Yes	7	2 <sup>nd</sup> grade
		Daughter	Mobile	No	6	1 <sup>st</sup> grade
<b>C3</b>	Between half of the median to the national median	Mother	Tablet	Yes	35	University
		Father	Smartphone	No	35	University
		<b>Son</b>	<b>PC/laptop</b>	Yes	7	2 <sup>nd</sup> grade
		Son	<b>Mobile</b>	Yes - passively	3	-
<b>C4</b>	Between half of the median to the national median	Father	Tablet	Yes	38	Apprenticeship
		Mother	<b>Smartphone</b>	Yes	40	University
		<b>Son</b>	PC/laptop	Yes	7	2 <sup>nd</sup> grade
		Daughter	Mobile	Yes	4	-
<b>C5</b>	National median	Father	<b>Tablet</b>	Yes	40	Secondary School
		Mother	<b>Smartphone</b>	Yes	41	Secondary School
		<b>Daughter</b>	<b>PC/laptop</b>	Yes	7	2 <sup>nd</sup> grade
		Daughter	Mobile	Yes	5	-
<b>C6</b>	Below half of the national median	Mother	Tablet	Yes	35	Higher vocational school
		Son	<b>Smartphone</b>	Yes	9	3 <sup>rd</sup> grade
		<b>Son</b>	PC/laptop	Yes	7	2 <sup>nd</sup> grade
			Mobile			
<b>C7</b>	Below half of the national median	Mother	Tablet	Yes	39	University
		Father	<b>Smartphone</b>	Yes	41	University
		Son	PC/laptop	Yes	9	4 <sup>th</sup> grade
		<b>Son</b>	Mobile	Yes	7	2 <sup>nd</sup> grade
		Daughter		Yes	5	-
		Daughter		Yes - passively	0,5	-
<b>C8</b>	National median	Father	Tablet	Yes	41	University
		Mother	Smartphone	No	40	University
		Son	PC/laptop	Yes	10	4 <sup>th</sup> grade
		<b>Daughter</b>	<b>Mobile</b>	Yes	7	2 <sup>nd</sup> grade
		Grandfather		No	76	University
<b>C9</b>	Between half of the median to the national median	Father	Tablet	No	37	University
		Mother	<b>Smartphone</b>	Yes	36	University
		<b>Son</b>	PC/laptop	Yes	8	2 <sup>nd</sup> grade
		Daughter	Mobile	Yes	6	1 <sup>st</sup> grade
<b>C10</b>	National median	Mother	Tablet	Yes	35	University
		<b>Daughter</b>	Smartphone	Yes	7	2 <sup>nd</sup> grade
			PC/laptop			
			Mobile			

**Note:** \*device owners in bold, \*\*device(s) owned by child in bold

## Analyses

All interviews were transcribed verbatim. For the purpose of this study, only interviews with parents were analyzed. A Thematic Analysis procedure was applied as the analytic method (Braun & Clarke, 2006). The first and second authors conducted the analyses. The six steps of the Thematic Analysis method were used:

- (1) getting familiar with the data through multiple readings of the transcripts in an excel file
- (2) generating initial codes to highlight topics in the data (3) grouping the codes into categories and searching for recurring themes
- (4) reviewing the emergent themes
- (5) defining and naming the themes
- (6) producing the report (Braun & Clarke, 2006)

To increase the validity of the findings and to strengthen the inter-coder triangulation of results, an audit was completed. The third author validated the themes developed by the first and second authors.

## Results

The parents of 7-8-year-old children face the necessity of using mediation strategies for technology usage. We describe three themes (see Table 2) related to the mediation strategies of parents: (1) Mediation strategies of technology usage; (2) Time and place management of mediation strategies; and (3) Child as a co-creator of mediation strategies.

Table 2. *Mediation Strategies of Parents of 7-8-Year-Old Children.*

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### **THEMES (in capitals) and Subthemes (in italics)**

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#### **MEDIATION STRATEGIES OF TECHNOLOGY USAGE**

Co-use, active mediation, supervision, parent as role model, restrictive mediation, trial and error  
Family approach to rules: no rules, general rules, strict rules

*Mediation of technology opportunities*

- Digital skills
- Free-time activities
- Practical technology usage
- Educational purposes

*Future mediation of technology risks*

- Future mediation of: internet overuse, game addiction, meeting unknown people online, cyberbullying, data misuse, inappropriate content

#### **TIME AND PLACE MANAGEMENT OF MEDIATION STRATEGIES**

Mediation changed according to: free time and working time, weekends, holidays and days off, school days, exceptional occasions

#### **CHILD AS A CO-CREATOR OF MEDIATION STRATEGIES**

Children's approaches to technologies as an important aspect of the mediation strategies

*Technologies as a natural part of a child's environment*

*Child's interactions with parents*

*Parents' perceptions of child's reaction to technology usage*

- Technology usage is perceived by parents as one of many activities
  - Technology usage is perceived by parents as the preferred activity
- 

## Mediation Strategies of Technology Usage

Families in our sample reported mediation strategies for general technology usage and mediation strategies in the context of specific technology opportunities and risks. Two subthemes were identified: (A) the mediation of technology opportunities, and (B) the future mediation of technology risks.

Mediation strategies for general technology usage are related more to general rules and beliefs than to specific risks and opportunities. The parents' mediation strategies for young children are often linked to the belief that children are too young and they do not do inappropriate things with technologies, such as communicating with strangers or finding inappropriate content. As one family (C5) reveals:

*Father: "For now they are visiting just appropriate sites, for now they are not going elsewhere, but we will see how it will be in the future. (...) such as they could find websites that are not for them where is..."*

*Mother: "...where is some advertisement and she [daughter, 7 years old] will click on it and there will be a porn site or something. (...)"*

*Father: But now it is ok, we are waiting [for what will be in the future].*

The majority of the families do not have strict rules for technology usage. Those families usually set rules situationally: *"I never really had the intention to set [rules], because sometimes he doesn't even touch it and sometimes he sits there for a bit longer, for example. But it is not really like - well now you have an hour. I never really, I never intend to impose it"* (Mother, C10). Technology usage in such families was perceived to be one of many activities. Therefore, they did not have any special rules. Nevertheless, general rules were applied. For example, free-time activities (including technologies) were allowed after chores and schoolwork were completed, and children had to request permission to use technologies.

Some of the families had strict rules. These rules related to the time spent with technologies and to the more accurate control of technology usage. Some parents set up rules specifically for technologies that were perceived as something special. For example, in some families technology usage was a form of reward or punishment:

*"Anyway, for a reward, and when there is time, that means when... they have a lot of free-time activities, so when we come home, the first thing is to do the homework. When they are finished with the homework and there is time left and there were no problems at school, then there is some kind of reward"* (Father, C2).

Mediation strategies for specific opportunities and risks were also identified. Parents reported (a) co-use – the parent uses technology together with the child; (b) active mediation – the parent explain issues related to technology; (c) supervision – the child uses technologies while a parent is nearby; (d) parent as role model – the parent use technology while the child is observing the parent's activities; (e) restrictive mediation – the parent set up restrictions in the context of technology usage; and (f) trial and error – the parent knowingly lets the child use trial and error while using technology. The next two subthemes describe the content of the parental mediation – the mediation of opportunities and the mediation of risks as perceived by the parents. That means that the parents themselves linked some of their specific mediation activities to the opportunities, such as digital skills or possible risks. We believe it is important to clarify what the goal is for these mediation activities from the parental perspective, especially because parents are very active only in the mediation of opportunities and almost completely inactive in the mediation of risks, as we show below.

**Mediation of technology opportunities.** Parents from our sample gave extensive examples that provided insight into their mediation of technology opportunities. Technology opportunities perceived by parents for children include free-time activities, practical technology usage, and educational purposes. Parents also mentioned digital skills that children could learn/improve during all of the above-mentioned opportunities. In terms of the mediation strategies of online opportunities, from parent reports we identified the following strategies: co-use, active mediation, supervision, parent as role model, and restrictive mediation, and some parents let their children learn themselves by trial and error.

**Digital skills.** Trial and error was linked to digital skills. Some parents let their children learn to use technologies themselves, like how to download applications, and use them: *"Intuitively. Trial and error, so it is not like it would be targeted... she tries it herself"* (Mother, C10). Co-use was also used to manage digital skills. This strategy was initiated by either the children or the parents. Some parents pointed out that their children ask how to continue

a game, and they ask for help when they can not read or speak the language. As a father (C8) explained: *"They [daughter, 7 years old, and son, 10 years old] could download games on their own, (...) when the game asked for some information they asked what to do and we [father and mother] told them."* Co-use initiated by parents was linked to active mediation when parents explain, for example, how to use PC components, like a mouse or a keyboard, and how bookmarks, browsers, and some applications work. As a father (C4) pointed out:

*"I showed him that he has a bookmark there. Then when he wants to look at something, there it is. And then I saved him tutorials for rubber-band knitting [a popular activity for children in the Czech Republic] into the bookmarks. I told him that he does not need to look for it, he does not need to google it. It is just enough to open it in the bookmark bar. He knows that now."*

Parents as role models improves digital skills because it allows children to observe their parents' technology usage. Parents motivate their children to use technologies in the same way as they use them: *"Otherwise, he, of course, sees us working, so for example when they are waiting for when a person finishes their work and lets them go on the internet, they see part of the work"* (Mother, C3).

**Free-time activities.** Supervision is usually applied during free-time activities when children are allowed to use technology while a parent is nearby. Co-use is also part of some free-time activities, such as playing games or watching videos. Free-time activities, especially games, are a part of the restrictive mediation, such as when some parents control games. As a father (C2) reflected: *"So we need to choose, select, what is a suitable game for [my son]."*

**Practical technology usage.** Parents also mentioned teaching children how technologies can help them in everyday life. They try to show children the available possibilities, like different programs and websites that could help people connect their online and offline lives, such as when they search the family vacation together. Parents usually use active mediation in combination with co-use while they search for timetables (e.g., so children get to school on their own), vacation destinations (e.g., show pictures of places and the possibilities for how to get there), free-time activities (e.g., websites of different free-time activity clubs), and shop online. For example, a father (C5) described how they look for free-time activities in their family (daughters 5 and 7 years old): *"...photos and also the virtual tours are really great... for example, Wikyland [Child Park]. So we just looked, how it looks there, so we looked at the photos – Yeah, we want to go there [the daughters said]."*

**Education.** For educational purposes, parents usually use co-use or supervision to mediate some (school) activities, such as to learn reading, writing, and mathematical skills, as a father (C5) reveals: *"When she [daughter, 7 years old] was younger, she learned how to write, she liked it. We opened Word and I told her 'A' and she found and wrote 'A', and then she tried to write also whole words."* Parents also mentioned that some games could improve their children's language knowledge and also basic economics skills, like profits and losses in games, or social skills, like fair play, or how to take care of someone. A mother (C9) talked about an educational program on a CD that her son used to learn languages while she supervised the process: *"[My son, 8 years old] learns Czech language and English. He had this CD, there are some assignments and when he fills them in he goes to the next level and he travels around the world."*

**Future mediation of technology risks.** Parents reported knowledge about technology risks, such as internet overuse, game addiction, meeting unknown people online (i.e., stranger danger, pedophiles), cyberbullying, data misuse, and inappropriate content. Nevertheless, every parent in our sample perceived those risks as not yet present and the use of mediation strategies unnecessary for young children. As a mother (C5) reported:

*"Now we really cannot do anything, because like my husband says, they are not at the stage when they would have some need for social networking sites, so there is no point in telling them. Now we tell them not to sit in a car with a stranger after school. We don't jumble their minds with the internet."*

This do-nothing strategy could also be linked to the belief that mediation strategies will only be needed when something happens: *"I deal with things when they come. Like, I don't worry about something that is not an issue. I try not to forbid something that has not yet happened"* (Mother, C1). So far, parents wait and do not pay attention to this potential problem. For every parent in our sample, technology risks for their children in the future were

connected to social networking sites (SNS). Two parents revealed that they do not want their children to know that SNS exists. They try to avoid the sites as long as possible, and they would rather lie about their SNS use than explain it. Other parents linked the start of technology risks with the development of reading and social skills, and the necessity to increase technology usage because of schoolwork.

Parents expect to deal with those risks in the future when the children start to visit SNS and develop an online social life. For example, a father (C8) shared his fear of cyberbullying:

*"We are probably afraid of contacts with different people on social sites, but we are afraid maybe more of bullying or cyberbullying than of contacts with older people with the inclination to pedophilia. Not that, I don't think so. I think that our children are cautious enough."*

Another father (C2) shared his struggles about the mediation of danger from contact with strangers. Once he tried to talk about it with his 8-year-old son, but he did not know how and he found it difficult to use appropriate language and not scare him; therefore, he had not yet done it:

*"Here you have a person, a small child, second grade, so how to tell him this fact about these people that abuse children or they pretend to be someone else... And at the same time it is probably difficult to do it in a way the child can understand, that things like this happen, and that it can be unpleasant, but at the same time not to scare them with something that it is dreadful."*

Parents differ about the strategies for how to mediate those risks in the future. Some parents do not yet know how they will manage it. Others would like to use mediation strategies that they already know from the offline world, and apply them to the online environment, i.e. the mediation of meeting strangers in the offline world applies similarly in the online one. Some parents also rely on school and the schools' technology risk-mediation programs. However, every parent agreed that the mediation of technology risks will be necessary in the future.

## **Time and Place Management of Mediation Strategies**

Time and place management of mediation strategies are important parts of the mediation process of technology usage. Parents reported that they distinguish between free time and working time. Mediation can be different on weekends, during holidays and days off, and during school days. As a father (C5) expressed: *"During holidays, there is more freedom but during the school year... when the older daughter comes home from school, first she has to do the homework and only after that she can play."* The time of day also made a difference in the mediation process. Some families set up rituals related to the daytime and nighttime. For example, watching fairy tales before bedtime or using technologies while the parent was walking the dog in the morning.

There are also changes for exceptional occasions, like traveling, a doctor visit, an illness, or bad weather. As a mother (C10) remarked: *"These mobile phones, during travelling when there are long periods of waiting, then there (we use them)."* Exceptions may also be made for visits by friends and a family member, like grandparents who may apply different mediation strategies than the parents. Another special occasion is when the parents need time for their own work and they required the children to be engaged and to entertain themselves. Technologies are perceived as helpful in such occasional situations. As a mother (C10) reflected: *"At home, when I need to do something quickly and I need to somehow, like, put her away. When I say it bluntly, it really is for putting her away."* Additionally, special occasions are also related to situations when children are alone, such as when they go to school or to a free-time activity. During such situations parents perceived smartphones as a communication and a monitoring tool to stay in touch with their children. This motivation is pivotal for some parents: *"That is why I bought him the mobile phone, so I could control him when he would sometimes go with a friend and now I could just call him to check and know where he is"* (Mother, C6). Nevertheless, when children have their own smartphones they also have the opportunity to use them without parental supervision. Consequently, these occasions usually lead to a more liberal mediation strategy, where children are not adequately controlled, or no mediation strategy. Parents let their children use technologies by themselves, sometimes without supervision, during exceptional occasions like an illness or while parents are working or doing household chores. As a mother pointed out (C9): *"I can use the PC to let them watch something so they would not be scared while I go out for a walk with the dog."*

We can conclude that situational factors in the mediation process are strong. Parental mediation strategies are co-constructed by parents and their children and are changing according to the specific family situation. The mediation of technology is not a stable parental behavior, but it is always developing and changing in context, according to time, place, and the children's characteristics and behavior.

### **Child as a Co-Creator of Mediation Strategies**

The parents' perceptions of their children's approaches to technologies seem to be important aspects of the mediation strategies. We identified three relevant subthemes of this category: (A) technologies as a natural part of the child's environment, (B) the child's interactions with the parents, and (C) the parent's perceptions of their child's reaction to technology usage.

**Technologies as a natural part of the child's environment.** The parents in our sample reported that children behave naturally and spontaneously with respect to technologies, and that technologies are a natural part of their everyday lives. They naturally learn quickly by observation and imitation. They quickly develop digital skills and use technologies on their own. For instance, a father (C2) said: *"The children, they perceive it differently from the grownups, naturally right. When I show them something, they take it completely naturally and they are not learning, they just see it and that is how they do it."* Such an approach encourages parents to perceive technologies as an important part of the everyday lives of their children. Parents think that children are learning naturally from observing other people. They believe that these abilities will help them in the future to use technologies properly.

**The child's interactions with the parents.** Parents appreciated that their children communicated with them about their technology usage. This subtheme is linked to some mediation strategies, namely co-use initiated by children and parent as role model. Parents reported that their children were able to ask for help when they struggled while using technology, and they asked for permission to use technology. As a father (C4) reported: *"Every time there is some kind of problem or when he needs help with something, he comes to me. He just comes to me and asks."* Parents as role models reported that their children also liked to observe their technology usage to learn new things. Consequently, parents reported that their children shared their curiosity and had a tendency to ask questions about several topics connected to the technologies. These strategies soothe parents. Parents trust their children and rely on their ability to ask for help.

**The parent's perceptions of their child's reaction to technology usage.** Two approaches were identified within the third subtheme: (a) technology usage is perceived by parents as one of many activities, and (b) technology usage is perceived by parents as the preferred activity of the child.

**(a) Technology usage is perceived by parents as one of many activities.** Some parents reported their children's technology usage in the context of many other activities, such as sports, games with friends, outdoor activities, and hobbies. Parents also talked about their children's tendency to follow rules and make compromises. Some children are, according to their parents, able to stop using technologies by themselves or when asked to. Parents also perceived that some children spend an acceptable amount of time suitable amount of time with technologies, and they like also other offline activities as well. Technologies are "just" another option of many activities. As a mother (C9) put it: *"I was surprised, my daughter [6 years old] is not envious that her brother [8 years old] already has a mobile phone. She is active herself. She is drawing, playing with dolls...she had more activities than technologies."* Some parents reported that they have a tendency to set less rules or no specific rules at all. For example, children spend an acceptable amount of time on technologies by themselves, so the parents do not need to set time restrictions. Some parents believed their children behave responsible. As a father (C5) reported:

*"During the school year, the older daughter is so responsible that she deleted the games where you have to take care of animals. That means, she uninstalled them... and when the holidays come she will install them again so she will have time for them."*

**(b) Technology usage is perceived by parents as the preferred activity.** In comparison to previous category, other parents have different experiences with children. These parents perceived their children to be unable to stop the activity themselves or even when asked to. Sometimes they talked about potential tendencies to

addiction or they reported that their children were fascinated by technologies. That means that their children would like to use technology any time when it is possible: *"I have a feeling with [my son] that he is more inclined to habits... when he plays these games it can be on any device, he has trouble detaching from it, and he can spend endless time with it"* (Father, C2). For these children, parents reported the tendency to set more rules and control more media usage. Some parents remarked that they talked with their children and explained things to them, such as the difference between fiction and reality.

The parents of three families reported having one child who was fascinated by the technologies and another who balanced technology usage with other activities. These parents distinguished those two preferences and had the tendency to compare their children. They are able to mediate each child in a different way according to that child's habits with technology preference. As the mother (C3) pointed out:

*"As far as computers are concerned, a tendency of almost addiction appeared with [my older son – 7 years old]. Like, from early ages he was fascinated. And, for example, the younger son [3 years old] does not have it at all. There I don't have the need to look at it as closely, because when he, for example, watches or does something on the computer for a while, then he comes to me and says that he had enough."*

## Discussion

Our study contributes to the current stage of knowledge of the parental mediation of technology risks with in-depth qualitative insight and focus on the situational factors in families with children aged 7-8. Our findings indicate that the parental mediation of digital media is a dynamic process that is co-constructed by the parents and the children in the context of the actual situation.

In the next three sections, we discuss our findings concerning the mediation strategies of online opportunities and risks, the time and place management of mediation strategies as a factor related to parental mediation, and the child as a co-creator of mediation strategies.

### Mediation Strategies of Technology Usage

Our results suggest that parents use various kinds of mediation strategies, such as co-use, active mediation, supervision, parent as role model, restrictive mediation, and trial and error. Similar types of parental mediations have already been identified by previous research (Nikken & Jansz, 2014; Zaman et al., 2016). In our investigation, we enrich current knowledge by linking these mediation strategies to specific online opportunities and risks. We believe this distinction between the different goals of the mediation strategies is important because our results have revealed that parents in our sample mostly mediate the digital opportunities and do almost no mediation of the online risks for young children. Our analyses demonstrate only the perspectives of parents, such as the parents saying that the "trial and error" mediation is linked to opportunities because "children are learning on their own". However, it is clear that such an approach of parents might be problematic because children who learn on their own are also endangered by several online risks (Nikken & Jansz, 2014; Smahel, Wright, & Cernikova, 2014), but parents did not acknowledge this problem with self-learning in our research. In the virtual environment, the border between online opportunities and risks is more blurred than it is reported by the parents in our study, who mainly described the mediation of online opportunities. Future research may reflect the possible consequences of this "trial and error" approach, such as the relation to possible online risks that children could experience while learning on their own.

The mediation of technology opportunities was mostly connected to "content opportunities" where parents let children learn new things and let them improve their digital skills. Digital skills are mediated by different approaches, such as co-use, active mediation, and parent as role model. Contact opportunities that were identified in the previous research on older children were not directly present in our results. Some parents used games or programs in the educational context, which could improve some aspects of their children's social skills, such as fair play. Parents also did not mention any conduct opportunities for their children. This could be linked to the characteristics of their children's activities. Children in our sample do not participate in SNS, blogs, or online games. Parents also did not mention these applications as possible opportunities in the future.

Concerning the mediation of online risks for young children, it seems that parents in our sample underestimated the possible online risks. The parents were mostly afraid of the “contact risk”, such as the possibility that their children could communicate with strangers online, like within social networking sites. Therefore, it seems that parents from our sample were mostly afraid of the future, which is in line with the study carried out in Singapore on the population of families with children aged 7 to 12 (Shin, 2015). But previous research has also indicated that young children (under 8 years old) are sometimes exposed to interactions with online strangers within online games (Brito & Dias, 2016). Parents in our sample were not aware of this problem and they planned to mediate online risks in the future when their young children start to communicate more online. Future research should investigate this issue on larger samples and in more cross-cultural contexts.

Further, within our sample none of the parents spoke about the “content risk”, such as advertising, violent content, sexual content, or idealized thin or muscular images that can be displayed to children on the internet (Staksrud & Livingstone, 2009). For instance, media exposure of the ideal physique could be linked with some eating disorders symptomatology, mostly among users at risk for developing an eating disorder (Hausenblas et al., 2013). It seems that parents in our sample underestimate this kind of risk. In the previous research, about 10% of parents reported that their children under 5 years old had made in-app purchases by accident and that children had been exposed to content that made them feel uncomfortable (Marsh et al., 2015). This theme requires further research that should involve more methods, such as recording the screen devices of children. It is evident that some parents do not know about inappropriate content and further research should probably directly investigate the online behavior of children.

The parents in our sample also did not speak about the possible “conduct risk” where the child becomes an actor within possibly risky scenarios, such as creating aggressive content, and harassing or bullying others (Staksrud & Livingstone, 2009). However, Marsh (2010) reported these kinds of behaviors within the virtual world among 5-8-year-old children, such as throwing virtual snowballs at avatars, excluding avatars from parties, and name-calling. It seems that parents are not aware that their children aged 7 and 8 might engage in this type of possibly risky behavior.

In our investigation, parents reported almost no mediation strategies related to online risks, but they reported many strategies for enriching their children’s opportunities, such as digital skills. The enrichment of digital skills might lead to better resilience against online risks. Vandoninck and d’Haenens (2014) reported that technical instrumental actions, such as deleting, unfriending, or blocking certain people, might lead to successful preventive strategies against online risks.

## **Time and Place Management of Mediation Strategies**

Time and place was described by parents as a very important factor for the mediation itself. This result is in line with the research of Zaman et al. (2016), who also indicated the importance of considering contextual factors, like when, where, and under which external conditions children are allowed to use the media. Several studies have shown that parents use rules to mediate their children’s usage (i.e., Livingstone & Helsper, 2008). Our study indicates that rules are not strict in some families, and that the rules are set more situationally in relation to the context, such as where and when the children use the technology and also what the needs of the parents are. Therefore, some parents are not able to report specific rules of technology usage that are more contextual and they rely on general rules that are valid for both offline and online life, such as when children finish their homework they can play their dolls or the tablet.

Our results indicate that parental mediation strategies change according to the family situation. They are not a stable, easily measurable behavior; rather, they emerge over and over again according to time, place, and the parents’ and children’s characteristics and behavior. Up-to-date research has mostly measured the socio-demographic factors of parents and children that impact parental mediation, such as gender, age, education, digital skills (i.e., Livingstone, Ólafsson, et al., 2017; Nikken & Schols, 2015). We suggest that future research should involve the context of the situation more, such as the time and place of the application of the mediation strategies, because there is nothing like stable general mediation. Therefore, we recommend that future surveys should not only ask about general parental mediation but also connect the mediation to a concrete situation and context. Future research should also reflect the role of the parents’ perceptions of their children’s behavior, such

as their ability to ask for help. When parents, for example, believe that their children will ask them for help if a problem occurs, they apply fewer mediation strategies than if they believe their children will not ask for help. The situational factors, such as the time and place management of mediation strategies, also play a role in the possible underestimation of online risks because, in certain situations, such as travelling and when parents need time for themselves, parents apply fewer mediation strategies or they do not use mediation strategies at all.

### **Child as a Co-Creator of Mediation Strategies**

According to Mesch (2009), the research of parental mediation was based on the premise that technologies can affect children's attitudes and behaviors. These technological effects can be influenced by parental activities to a certain extent. Nevertheless, our research indicated that parents are also influenced by their child's behavior, which then affected their mediation strategies. In our perception, parental mediation is more a process of the interactions between children and parents that co-constructs the mediation strategies of the parents. The reported parental perceptions of children as the co-creators of the mediation strategies is in line with the new sociology of childhood (Christensen & James, 2008), which presents the child as an adequate socialization agent and not just the recipient of parental care. Although our research is from the parental perspective, the parents acknowledge the role of their children in the mediation process. This result also supports the study of Livingstone, Ólafsson, et al. (2017), which indicates that the parental mediation of technology usage is interconnected with the parents' perception of their child's digital skills. When parents perceive a child as a competent internet user they support their activities, such as allowing them to use the technology for a longer time and without constant supervision. On the other hand, parents applied more restrictive strategies for less digitally skilled children which may further limit their possibilities for increasing digital skills. Future research should also reflect this position and should be focused on the different aspects of the child's behavior and the various factors that impact the parental mediation.

### **Limitations and Future Research**

Our investigation was carried out within only 10 families in the Czech Republic and the generalization of the results is very limited. We endeavored to make the sample various and we included families in different configurations (see Table 1). The nature of the sample allowed us an in-depth exploration of the families where children have regular access to technologies. Unfortunately, we do not know how it works in families with no regular access to technologies. We also did not have a family with young children who use social networking sites in our sample. It may be that families with such young children use different mediation strategies because some parents said that they will use different strategies in the future when their children meet people online, such as within social networking sites. It is also possible that the parental mediation strategies of young children's technology usage varies across countries and cultures. We recommend future quantitative and comparative research to validate such hypotheses. Our investigation was also focused only on the perspectives of parents, which is a substantial limitation. It might be that children would bring different perspectives to the investigation.

### **Implications**

Our research indicates that parental mediation is a dynamic process that is co-constructed by the parents and the child in the context of the actual situation. This could indicate that it might be more effective to give education concerning digital skills to both parents and children together, such as in families and/or through online courses, because such education would affect both of the actors within the mediation process. It is also important to recognize that there is typically not one parental mediation strategy, but the strategies vary according to different situations. The "optimal mediation" could vary at different places (such as at home, on vacation, while travelling, or with grandparents) and at different times (during weekdays, during weekends, or during holidays). The future education should be aware of these different contexts and this knowledge could also be applied to educational programs for children, parents (Cook, 2016) and teachers (Karaseva, Siibak, Pruulmann-Vengerfeldt, 2015). For example, it could be recommended that parents should think more about the mediation of situations where they have less control over their children's technology usage, such as when the child is with grandparents or at summer camps. Parents should speak with other caregivers about their

mediation strategies to balance the approaches of both sides, or at least to know the mediation strategy of the other side.

It seems from our investigation that parents prefer to not speak with their young children about online risks. Parents should be informed about the possible online risks for their children, such as the content or contact risks within online games. It might also be important to inform parents that they can help children to avoid risks by teaching their children digital skills.

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