CHARACTERISTICS AND PARENTAL VIEWPOINTS REGARDING DIGITAL DEVICE USE IN CHILDREN AGED 4 TO 8 YEARS

MATEA BODROŽIĆ SELAK[1], MARINA KOTRLA TOPIĆ[2], MARINA MERKAŠ[1]

[1] Catholic University of Croatia, Department of Psychology, Ilica 242, Zagreb, Croatia, contact: matea.selak@unicath.hr

[2] Institute of Social Sciences Ivo Pilar, Trg Marka Marulića 19, Zagreb, Croatia

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Abstract: *In the present digital age, the number of digital devices and media has multiplied, giving young children and their parents access to them anytime and anywhere. The family and home environment constitutes an important ecological context for fostering and supporting the development of safe online behaviour, as well as preventing risky online behaviour in young children. During childhood, parents play an influential role in shaping a child's use of digital technology (DT) devices through parental practices that are shaped by their beliefs about DT. The first aim of this study was to describe preferred digital devices, activities, and emotional states related to digital device use among children aged 4 to 8 years. The second aim was to describe parental viewpoints about their children's device use. The data was collected through online interviews with 31 children (16 girls), aged 4 to 8 years, and one parent of each of the children included in the project "Digital technology in the family: patterns of behaviour and effects on child development". The results show that smartphones are the children's favourite device and playing video games is their preferred digital activity. Most children reported feeling happy when they used DT devices, as well as feeling sad and angry when they had to stop using them. Parental motivation for providing children access to DT devices can be child- and parent-oriented. Parents frequently emphasised the educational aspects of their children's device use, but they were aware of the negative and positive effects on the children's functioning. The findings indicate that children's daily context of living in association with DT usage is characterised by small, portable devices that are used mainly for entertainment. Additionally, their parents allow the use of such devices because they believe that DT can have a positive impact on child development, and they need to occupy children's attention in specific situations. However, DT device usage is limited due to the awareness of the negative impact on child development.*

Keywords: *children, parents, digital device use, motivation, risks, benefits, smartphone*

INTRODUCTION

Children's use of digital technology (DT) devices is typically shaped by context, including social (e.g., social networks, social support), and physical (e.g., material things, place of living) environments. The most proximal social context for children is family, where parents acquaint children with device use. Parents influence their children's device use through parental practices and interactions, which are in turn affected by the individual characteristics of children and parents but are also embodied in the larger ecological and cultural settings. One of the theoretical frameworks for analysing the context associated with different situations is the "developmental niche" (Super & Harkness, 2002). The developmental niche framework deconstructs the child's daily context of living into different operational subsystems, including physical and social settings, historically constructed practices of childcare and child-rearing, and the psychology of the caregiver, particularly parental ethnotheories, which play a directive role and are shared within the community (Super & Harkness, 2002).

In order to develop programmes and policies for families aimed at fostering healthy and appropriate use of devices in children, a culturally inclusive base of knowledge about child development must be created (Mistry, et al., 2003). The present study describes children's physical

and social settings related to DT device use and parental ethnotheories about their children's device use. The physical and social, namely family settings, related to children's DT device use was explored based on the responses of children aged 4 to 8 years. Parental ethnotheories, specifically parental motivation for providing children access to digital devices, as well as parental beliefs about the impact of device use on children, were investigated based on the responses of parents of the above-mentioned children.

Children's digital devices and activities

The present physical and social settings of children's lives are marked by the diversity and availability of DT devices (Ofcom, 2022; Roje Đapić et al., 2020). Previous research has shown that almost 96% of children between the ages of 5 and 7 years actively use various digital devices such as smartphones, tablets, laptops, and game consoles (Almuaigel et al., 2021; Kalabina & Progackaya, 2021; Susilowati et al., 2021). However, Tay et al. (2021) reported that preschool children (aged 2 to 7 years) are mostly engaged with a television (TV). For children aged 0 to 8 years, the preferred digital device is a tablet, since its larger screen size (compared to a smartphone) allows for easy use and presents a creative environment (Chaudron et al., 2018; Papadakis et al., 2019). However, tablet use is not as widespread in Croatia as in other European countries (Chaudron et al., 2018). In a qualitative study conducted by Kotrla Topić and colleagues (2017), it was found that the preferred digital device among preschool children (aged 0 to 8 years) in Croatia is a smartphone.

Children's activities on digital devices include watching cartoons, playing games, watching videos, taking photos, communicating, making videos, and listening to music (Chaudron et al., 2018; Kalabina & Progackaya, 2021). The two main motivations for digital device use among young children (aged 5 to 7 years) are learning and playing games, as reported in Goh et al. (2015) and Kalabina & Progackaya (2021). However, the time spent on entertainment-related digital activities is higher than the total amount of time spent on other digital activities (i.e., learning, communicating, and creating) (Tay et al., 2021).

Engagement in digital activities among young children is known as "digital play" (Marsh et al., 2016). Digital play includes playing games, using applications, taking pictures, watching videos, and making videos (Marsh et al., 2016). Most children (83%; aged 5 to 6 years) express a desire to play digital games, which have become a regular part of the lives of young children in Western societies (Mertala, 2016). Playing games with digital devices became more popular due to the COVID-19 pandemic, and such games were promoted by the World Health Organization because they supported social interaction, while respecting the physical distancing guidelines (Burns & Gottschalk, 2020; DAK-Studie, 2020). The use of digital devices for playing and entertainment has become one of the favourite daily activities of preschool children (Almuaigel et al., 2021; Kalabina & Progackaya, 2021; Ofcom, 2022).

DT promotes gratification in children (Almuaigel et al., 2021; Ofcom, 2022). Studies indicate that DT use induces pleasant emotions, which might be the result of the main motive - entertainment (Almuaigel et al., 2021; Kalabina & Progackaya, 2021; Ofcom, 2022). In a qualitative research study conducted by Yücelyiğit & Neriman (2021), most children (7-15 years old) indicated positive feelings, amusement, happiness, and excitement while using DT. On the other hand, most children stated that they were unhappy, nervous, and bored without their devices (Seo & Lee, 2017; Yücelyiit & Neriman, 2021). When children (aged 2 to 6 years) were asked to stop using touchscreen devices, they tended to reject parental requests and make a fuss, while children with items such as toys or books returned them without objection (Seo & Lee, 2017). Thus, the process of guiding children's device use constitutes a major challenge for today's parents.

Parental motivation and beliefs related to children's device use

Young children's digital play and its effects on child development cannot be understood without

exploring the characteristics of primary caregivers and the family context of the child's development. Parke and Buriel (1998) suggested that parental affect and cognition are increasingly viewed as central to the socialisation process, as well as to our understanding of the nature of parent-child relationships and socialisation practices within families. Parental beliefs (e.g., notions about the nature of children, expectations about development, the role of parents, and definitions of appropriate or good parenting) are associated with caregiving practices that affect children's development (Mistry et al., 2003). Since parental beliefs are systematically related, socially constructed, and derived from larger cultural belief systems, Harkness and Super (1996) referred to them as "parental ethnotheories". Parental beliefs about the usefulness and consequences of DT use on children can shape parenting practices that represent the socialisation of children in the family, particularly when it comes to behaviours related to DT use. For example, if parents are against DT use, they will probably prohibit their children's DT use more strongly and teach their children that DT use can cause more harm than good.

The reason why parents allow their children to use devices and their thoughts about the possible consequences of children's DT use can affect their parenting behaviour and practices, as well as their child's development. This process can be culturally specific, emphasising the cultural relativity of valued socialisation goals and childcare practices. Studies on parental beliefs, which are constructed within the larger sociohistorical and cultural context, often reveal how macrosystem-level ideologies and contexts are represented in micro-level interactional processes and practices of parenting (Mistry et al., 2003). The assumption is that ethnotheories or cultural belief systems are expressed or instantiated in parental behaviours and activities based on the settings that parents organise for their children, in caregiving customs, and during daily interactions between parents and children (Mistry et al., 2003). There is a wide variation in the culture-specific skills, beliefs, and values that are reflected in parents' caregiving practices, and children's experiences are shaped by these customs of care. This can result in developmental differences observable at the level of the cultural group (Mistry et al., 2003). Despite the global nature of modern technological advancement, cultural disparities in parental mediation are evident, and further research is needed to fully understand these distinctions at the individual level, as well as in the context of larger social and cultural settings in which they function (Terras & Ramsay, 2016).

Parents have emphasised the benefits of having a TV in a child's room, such as keeping the child occupied, helping the child fall asleep, and letting other family members watch various shows (Taveras et al., 2009). It seems that this motivation is common among parents, because more than 60% of parents in Croatia often allow their children to use digital screens to occupy their attention (Roje Đapić et al., 2020). During the COVID-19 lockdown, parents pursued business commitments from home using digital devices, which interfered with their parenting and family duties (Caroll et al., 2020). Even before the pandemic, parents frequently indicated that devices often effectively served as babysitters (Seo & Lee, 2017). It is possible that parents are indulgent with young children's device use (e.g., smartphone) because they believe their children are protected due to their modest linguistic skills, which prevent them from using social networks, which are, from their point of view, the most dangerous (Dias et al., 2016). On the other hand, one in two parents in Croatia often provide access to digital screens to entertain their children, while nearly half do so sometimes to help children learn (Roje Đapić et al., 2020). Some parents perceive DT as a means of entertainment and allow their children to entertain themselves with DT (Kalabina & Progackaya, 2021).

Most parents of children aged 6-7 years old have ambivalent attitudes towards DT (Kotrla Topić & Perković Kovačević, 2016). They worry about the negative consequences of their children's DT use, but at the same time, they feel it is important for children to learn how to use it and like the fact that it entertains children. As for the positive aspects of DT, parents often state the educational potential of digital media, emphasising

that children learn through DT, even if they are exposed to non-educational content (Dias et al., 2016; Susilowati et al., 2021). In addition, parents recognise the negative aspects of DT use, which include lack of sleep, physical activity, social isolation, and poor psychosocial skills (Dias et al., 2016; Susilowati et al., 2021). Seo & Lee (2017) reported three types of negative parental perceptions of children's DT use: physical effects (i.e., poor body posture, poor eyesight, and a lack of physical activity); cognitive effects (i.e., lack of creativity and intelligence); and psychological problems (i.e., compulsive use of DT).

Present study

This study focuses specifically on early and middle childhood, since previous research in Croatia has mainly focused on older children and there are some gaps in the literature on younger children's use of DT with respect to the value of DT use early in life (e.g., Papadakis et al., 2021; Šmahelová et al., 2017). In this developmental period, parents display their practices associated with children's device use, namely parental mediation, and children begin using DT devices by themselves and on their own. Parental beliefs about why they give or do not give DT devices to children, as well as their thoughts on how DT use will affect children's development can determine parental practices such as their levels of parental mediation. Different strategies of parental mediation can have different developmental outcomes (e.g., Coyne et al., 2017; Bodrožić Selak et al., 2022; Perić Pavišić et al., 2022). For example, if parents allow unlimited DT use, they can shape children's unhealthy habits of DT use (e.g., overuse of DT, DT use at any time and place) very early in their lives, which can have negative effects on the child's well-being and development (e.g., Scott, 2022; Šmahelová et al., 2017; Terras & Ramsay, 2016). Therefore, identifying parental behaviours that are related to unhealthy DT use in children is also important, in order to prevent such unhealthy use.

There is a lack of knowledge about parents' practices and perceptions related to children's DT use in Croatia. A few studies conducted in Croatia point to similarities between parents in Croatia and parents from other backgrounds when it comes to their practices and viewpoints on children's DT use (Kotrla Topić & Perković Kovačević, 2016; Roje Đapić et al., 2020), but it could be argued that, for now, these are only assumptions. Studying parental beliefs about their children's device use is important since beliefs are related to parental practices (e.g., parental mediation) and these practices are in turn related to behaviour and developmental outcomes in children. Thus, to understand why parents allow their preschool and young children to use DT, parental viewpoints and their belief systems associated with children's DT use should be examined. In the present study, the parental system of deriving meaning from their behaviour associated with their children's device use is considered.

Most of the research conducted so far have been based on quantitative approaches, assessments, and self-assessments by children and parents (Chaudron et al., 2018). Qualitative studies offer researchers more detailed insights into the topic of interest. Considering the continuous development of digital media and specific circumstances that put even more emphasis on its use, it is important to reassess previous findings on this subject.

Thus, the purpose of the present study was to describe children's physical and social settings related to DT use and parental ethnotheories about their children's DT use. The first aim of the study was to describe preferred digital devices, activities, and emotional states related to digital device use in children aged 4 to 8 years. The second aim was to describe parental beliefs related to their children's DT use, more precisely, their motivation for giving children access to DT devices and their beliefs about the impact of device use on children aged 4 to 8 years.

Based on previous findings, it is assumed that smartphones will be the children's favourite devices, playing video games will be a preferred activity, and the children's main reason for device use will be entertainment (Kalabina & Progackaya, 2021; Kotrla Topić et al., 2017; Ofcom, 2022). It is also expected that children will emphasise happi-

ness during device use and unpleasant emotions at times when they must stop using the devices (Seo & Lee, 2017; Yücelyiğit & Aral, 2021). Parental reasons for allowing children to use devices will be to entertain their child, as well as to have some time for themselves (Seo & Lee, 2017; Kalabina & Progackaya, 2021). Parents will also acknowledge the positive and negative sides of children's device use (Dias et al., 2016; Seo & Lee, 2017).

METHODS

Participants

Participants included 31 children (16 girls) of kindergarten and elementary school age, as well as one parent of each of the included children (27 mothers). The children were between the ages of 4 to 8 years (M = 5.94; SD = 1.37). At the time of the survey, 19 children were attending kindergarten, while 12 were of primary school age (first or second grade). Most of the mothers (83.3%) and fathers (61.6%) had completed higher educational degrees (e.g., a college degree or PhD) and were employed (96.7% of mothers and 93.3% of fathers). The highest percentage of parents (29.8%) reported a monthly household income per person in the range of 464.66-597.25 EUR, followed by parents who reported their income in the range of 331.94-464.53 EUR (21.1%). The monthly household income per person varied from less than 199.08 EUR (1.8%) to more than 1260.87 EUR (14.0%). In conclusion, most children who participated in the study came from middle to upper-socioeconomic class families. Regarding the ownership of different digital devices among children, most of them (66.1%) owned a mobile phone with access to the Internet, while the others (36.4%) owned a tablet. Approximately, every fifth child in the sample owned a laptop (24.1%), game console (18.2%), portable device, or smartwatch (16.4%). Some children owned a computer (8.8%), a smart TV (3.5%), or a smart toy (3.8%). The data presented here on sociodemographic characteristics (parents' education and employment, household income) and ownership of digital devices is based on the responses of 28 participants (three did not provide data on these characteristics).

Interviews

Semi-structured interviews with parents and children were conducted online due to COVID-19 related restrictions. The interview questionnaire for children consisted of questions aimed at exploring the habits (e.g., Do you use your favourite DT device before going to sleep?), motivations (e.g., Why do children use DT devices?), benefits (e.g., Is there something good that might happen to children because of using DT devices?), rules for use (e.g., How do you know when you can use DT devices?), disruption caused by device use (e.g., Do you check your DT device while doing homework?), circumstances (e.g., How do you stop using DT device?), and the emotional responses related to device use in children (e.g., How does the use of DT device make you feel?). For the purpose of the present study, we analysed the children's responses to the following questions: "What is your favourite digital device?; What do you like to do most on that device?; How does it make you feel?; How do you stop using it - alone or does someone tell you to stop?; How do you feel when you can no longer use the device?"

The interview questionnaire for parents consisted of questions that explored the child's habits of device use, the presence of rules and structures for device use, potential monitoring of children's digital activities, the disruption caused by devices, and the consequences of device use on their children's health. For the purpose of the present study, parental responses to the following questions were analysed: "Why do parents let their children use digital devices?; What are the main reasons for children to use DT from your perspective?; Can you list the advantages, disadvantages, and consequences of using digital devices for you and your child?"

Procedure

The present study is part of the project "Digital technology in the family: patterns of behaviour and effects on child development". The project has received consent from the Ethics Committee of the Catholic University of Croatia and the Ministry of Science and Education of the Republic of

Croatia. Participants were recruited through the project's official website, Facebook, and Instagram accounts, as well as from schools and kindergartens. When interested participants contacted the team, they were asked to provide participant consent and suggest a convenient time for the interview. After describing the recruitment process, they were invited for an interview via the online platform Zoom. Due to the age of the children, their parents were present during the interviews. The interviews were recorded for transcription and data processing (February-May 2021). Participants were informed that their names would not be used in the transcript. The interviews with children and their parents lasted approximately 60 minutes. As a gesture of thanks, all participants received a coupon to visit a local zoo.

Data analysis

Thematic analysis was used to analyse the data obtained (Braun & Clarke, 2006). Two independent researchers read the interview transcripts and searched for statements related to the research questions. Researchers created larger thematic areas (devices, activities, feelings during DT use, activity interruptions, feelings due to stopping DT use, reasons for using devices, positive consequences for DT use, and negative consequences of DT use) that included the initial themes identified. After this step, researchers compared the thematic areas identified and conducted a review of the themes (Braun & Clarke, 2006). Due to the setting of the thematic analysis, there were some differences in the naming and grouping of the identified themes. These differences were discussed and reviewed by the researchers. Inter-rater reliability for children's activities was 90.3%, for emotional reactions when separating from digital devices was 87%, for parental motivation for their children's DT use was 77.4%, for benefits of DT use was 77.4%, and for risks was 90.3%. There were no differences in naming and grouping themes between researchers with respect to favourite devices and children's emotions during and after DT use.

RESULTS

Children's devices, activities, and emotional reactions to device use

For most children, the favourite device was the smartphone (N = 17, 58.84%), followed by TV (N = 6, 19.35%), tablet (N = 4, 12.9%), PlayStation (N = 3, 9.67%), and computer (N = 1, 3.22%). The most popular activity was playing games (e.g., a 6.5-year-old girl stated, "Well, I mostly play games."). According to the results, 70.97% (N = 22) of children stated that they enjoyed playing video games ("I like to play video games, record videos, and do different things on my smartphone." stated a 6-year-old boy). The second most popular activity was watching cartoons (a 7-year-old girl stated, "Watching cartoons.") and videos on YouTube. Other activities mentioned were listening to music, communicating with friends, photographing, and using TikTok.

Children generally stated that they felt happy during these moments (N = 28, 90.32%). A 6.5-year-old girl expressed, "So, I feel happy because my parents allow me to play games." These moments of happiness, are, in most cases, stopped by parents who announce to their children that their time for digital device use is over (N = 26, 83.8%). For example, "My mom tells me how much time I can spend with digital media." stated a 6-year-old boy. Some children do not know how and when to stop by themselves (6-year-old boy: "No, I do not know when to stop." – Interviewer: "Then someone will tell you when it's time?" – 6-year-old boy: "Yes." – Interviewer: "And then your mom and dad say, "Five more minutes?"– 6-year-old boy: "Yeah, something like that."). Some children know when it is the right time to stop on their own (N = 3, 9.7%) (7-year-old-boy stated: "I say when is enough." – Interviewer: "How do you know when is enough?" – 7-year-old-boy: "I know when I get tired."). Some children revealed that they felt "so and so" (N = 7, 22.5%) and "happy" (N = 5, 16.12%) when it came to stopping the use of devices, and some stated they felt angry (N = 8, 25.8%), sad (N = 4, 12,9%), or both (N = 2, 6.45%). For example,

"Then I feel sad and a little bit angry." (5-year-old girl), and "Sad and angry." (8-year-old boy).

Parents' reasons for children's device use and beliefs about the effects on children

Most parents (41%) reported that their main motivation for letting their children use devices was usually to calm the child in situations when they had something important to do. A mother of a 7-year-old girl stated, "Well, sometimes when we have something very important to do, I will admit it because it's true – we just must be patient for a little bit. Just to finish this calmly." One example was a situation in a restaurant as described by the mother of a 6-year-old boy: "I noticed that the first time we did it was when we were somewhere, and we had to wait a long time in a restaurant, and he was very restless. So that's how he got quiet. That's what I noticed. We were in a restaurant. Of course, he gets bored waiting for half an hour, and we do not have any other toys. In order not to disturb other people, we knew how to give him a cell phone." Some parents pointed to entertainment as the primary reason for giving their children devices. For example, "Cartoon for fun. Because it's cool. To look at something fun to her, for example, Little Einsteins was fun for a very long time." (a mother of a 4-year-old girl). Parents also mentioned how they allowed their children to use devices for communication, education, and information search. A mother of an 8-year-old boy stated, "Well, more for informing than communicating. And then some fun and relaxation."

When it comes to the basic benefits of using devices, most of the parents (N = 28, 90.32%) emphasised the educational component that DT offers (improving vocabulary, accessing information, and developing digital skills). A mother of a 5-year-old girl stated, "There are a lot of positives. These languages, these interactive games, um... verbal reinforcement, that is, watching these cartoons where something is being retold ... I can see exactly which words she certainly did not hear from me, but she heard them in the cartoon, so some are very literary, some we do not use. That is a good thing.". A mother of a 6-year-old boy described, "It's good that he's interested in technology. We bought the Smart TV a few years ago, but I am not interested in it. He knows how to fix some things that I don't even know how he discovered. He probably learned it by watching his dad. He understands technology very well. I think that's good. I think he can learn a lot.". A father of a 5-year-old boy stated, "The availability of a lot of information is both good and dangerous because it can end up anywhere, and it's very good. He does not know; he discovers different new techniques. Whatever they are interested in comes relatively quickly to some new information; it can bring them some creativity and research.".

The most common negative consequences according to the participants in our study were addiction (N = 11, 35.5%), lack of physical activity (N = 6, 19.4%), cognitive changes (N = 4, 12.9%), alienation (N = 3, 9.7%), and emotional changes (N = 3, 9.7%). All parents mentioned at least one negative aspect of children's DT use. A mother of a 7-year-old boy described, "It's addictive to children. There can be a change in the child's physical fitness. If he moves less and stays in the fresh air less, that can lead to an eating disorder. It is not scientifically proven, but it can affect vision, insomnia, and excessive looking at the device before going to bed. It is necessary to keep a certain distance from the device, and it is necessary to take breaks after 20 minutes.". A mother of a 4.5-year-old boy added, "The downside is their irritability, their anger, the fact that they cannot figure out how much time they can and cannot spend with it. Time flies by, and then they do not get it, so they fight. They are nervous, tense, edgy.". A mother of a 4-year-old boy stated, "I noticed that among young people, everyone is looking at these cell phones and they do not have them at all. I do not like this mutual communication – they are typing together. I dislike it a lot. But you cannot live in the Stone Age. You must accept that it's part of our daily life.". Regarding a preoccupation with the virtual world, the mother of an 8-year-old boy stated, "So, I think the fact is that it is that concentration goes to another world, so accessibility is zero points. Then you must bring him back from the world that he is preoccupied with and that it is then that he can't hear you because he is in his world.".

DISCUSSION

Children's devices, activities, and emotional reactions to device use

The first aim of the present study was to describe digital devices, activities, and emotional states related to digital device use in Croatian children aged 4 to 8 years. Our results show that the children's favourite devices were a smartphone, followed by a TV, tablet, PlayStation, and computer. The children's favourite activities were playing games and watching cartoons and videos on YouTube. Children expressed happiness while occupied with the mentioned activities, in contrast, they felt sadness and anger in a situation where they needed to stop using the device. The children's physical worlds related to digital device use was saturated with small, portable devices that predominantly served as entertainment "toys".

Children nowadays often spend their free time in the company of digital media (Almuaigel et al., 2021). The results of the present study show that the smartphone is a favourite digital device among Croatian children aged 4 to 8 years, which is consistent with previous results in the literature (Chaudron et al., 2018; Almuaigel et al., 2021). Smartphones are portable, small, have a lot of functions, and are attractive to use (Chudron et al., 2018). Additionally, parents usually own a smartphone, which makes it easy to give them to children. Children's preferences might also be based on certain criteria, such as the degree of relative autonomy with which they can access and use a device, or the type and number of applications a device contains. Therefore, it is not surprising that the children's favourite device was the smartphone, since it is easily accessible and gives the children the most autonomy.

Our results show that the most frequent activity on digital devices was playing games, which is consistent with previous research findings (Smahel et al., 2020). Other frequently mentioned activities in the present study were watching cartoons and videos, which is also consistent with previous research (Almuaigel et al., 2021; Ofcom, 2022). Digital devices serve as play toys for children between the ages of 4 to 8 years, and the use of such devices triggers positive emotions, so children are mostly motivated by device use to entertain themselves. These findings are consistent with current research, as most children use devices for entertainment or extracurricular activities (Anthony et al., 2021; Ofcom, 2022). Emotional engagement, enjoyment, and sensory experiences induce happiness among children because they mostly use them for pleasurable activities such as communicating with friends, playing games for fun, and so on (Ofcom, 2022).

Our results show that parents usually tell children when it is time to stop using digital devices. From the perspective of the Self-Determination Theory (Ryan & Deci, 2000), children's motivation at this age is still external and usually controlled by their parents, because children have not fully developed their capacity for self-regulation. Most children have restrictions on the use of their favourite devices. Immersion in the virtual world is most often interrupted by parents, to which children often react with anger or sadness. This finding is consistent with previous research according to which feelings of sadness and anger usually occur due to the interruption of a pleasant activity (Seo & Lee, 2017; Yücelyiğit & Aral, 2021).

Parental reasons for children's device use and beliefs about the effects of digital device use on children

The second aim was to describe the parental motivations for giving children access to digital devices and understand their beliefs about the impact of device use on children aged 4 to 8 years. This study shows that the main parental motivations for allowing their children's device use are to engross their attention, entertain them, help them communicate, as well as for education purposes and information search. Although parents are concerned about the physical, socio-emotional, and cognitive risks related to DT use, they emphasised the educational component of digital media. The results obtained in the present study are consistent with results from previous studies (Almuaigel et al., 2021; Kalabina & Progackaya, 2021; Smahel

et al., 2020; Susilowati et al., 2021; Yücelyiğit & Aral, 2021). It can be stated that parental ethnotheories about children's device use are marked by beliefs about the positive effects of device use on children that shape parental behaviour, namely parents allowing children to use devices. Furthermore, most parents are aware of the negative aspects of device use, and this parental belief is partially responsible for parental behaviour related to interruptions of device use and setting limitations.

The two main motivations associated with parents allowing their children to use digital devices are child-oriented and parent-oriented motivations. Some parents perceive devices in their children's lives primarily as a means of entertainment (Kalabina & Progackaya, 2021), but they are also aware of the educational potential of DT (Dias et al., 2016; Kotrla Topić & Perković Kovačević, 2016; Susilowati et al., 2021). Our results show that entertainment and learning are the most frequently mentioned motivations. When parents allow their children to use DT for fun, entertainment, relaxation, and learning, these are considered child-oriented motivations. On the other hand, one of the most frequently cited reasons why parents allow their children to use digital technologies is to calm the child in situations when the parent needs the child to be calm (e.g., in a restaurant or a waiting room), or in situations when they have something important to do. This motivation is parent-oriented and based on parents' tendencies to ensure some time for themselves or ease the burden of parenthood in specific situations.

The attractiveness of the content to children, along with the parent's desire to calm the child in some situations or occasions, is a winning combination for children's device use. It can be said that the same activity (used for entertainment) is driven by different motivations: having fun from the children's perspective and "buying peace of mind" from the parent's point of view. But frequent use of mobile devices for self-regulation may lead to the development of fewer regulatory strategies and an increase in internalised or externalised problem behaviours (McDaniel & Radesky, 2018). Therefore, it is important to inform and educate parents about the behavioural and emotional patterns that this strategy may bring about. The children reported that most of them did not know when it was time to stop using a device, but rather relied on their parents to tell them when to stop using it. This finding shows that at this specific age, the "control" over children's device use, both in terms of circumstances for access and time of use, remains in the domain of parents.

Our results show that parents emphasised educational value and the opportunity to learn and develop digital skills as major advantages of their children's device use. These findings are consistent with research according to which parents consider their children's skilful use of devices as a unique talent (Kotrla Topić & Perković Kovačević, 2016; Seo & Lee, 2017; Susilowati et al., 2021). Our results indicate that this talent enables children to learn and develop their skills, especially digital ones, vocabulary, and access to information. It is also interesting that when children are asked about their digital activities, learning is not mentioned, which means that parents assess this positive effect of device use in general without focusing on specific educational content. Parents who participated in our study stated that their children learn even when they are not exposed to educational content. The latter insights of parents are recognised as the most important benefits of device use for children, not only in the present research study, but also in previous studies (Dias et al., 2016; Susilowati et al., 2021).

However, caregivers are also aware of some negative consequences that are reflected in children's physical, socio-emotional, and cognitive functioning, which has been noted in previous research (Dias et al., 2016; Seo & Lee, 2017; Susilowati et al., 2021). Our results show that parents are concerned about the emergence of what they describe as addictive behavioural patterns in their children, although our participants are relatively young children, aged 4 to 8 years, and parents still have control over their device use. Besides addictive behaviours, our results show that parents highlighted irritability, aggression, alienation, and poor concentration as problems in today's children, which is partially consistent with the find-

ings previous research (Dias et al., 2016; Kotrla Topić & Perković Kovačević, 2016; Seo & Lee, 2017; Susilowati et al., 2021). However, there is a significant difference between our findings and those of a qualitative study conducted by Dias and colleagues (2016), which is reflected in the fact that parents in our study were not concerned about the harmful effects of advertising to which their children are exposed and possible communication with strangers. Some research data points to those consequences. Meyer et al. (2019) found that some apps for children contained at least one type of inappropriate advertisement. This finding implies that despite the early development of basic digital skills, children need effective support and constant guidance. Children are tech-savvy and develop their strategies for searching and browsing based on a trial-and-error process that might have various negative consequences (Dias et al., 2017). Parents of young children believe that their children are protected on the Internet because of their modest linguistic skills that prevent them from using social networks, which are the most dangerous sites from their perspective (Dias et al., 2016). Few children in the current study mentioned social networks, but recent research shows that children have started using social networks at an earlier age than before (Ofcom, 2022). Future research should focus on improving the parental perception of specific positive and negative consequences of children's device use in the context of their children's real experiences.

Limitations and implications of the study

The results of this study must be considered in the light of certain limitations. First, the sample was small and consisted of voluntary participants, mostly mothers. Future research must include the perspectives of fathers, a bigger sample for testing potential age and gender differences, and children and parents from different socioeconomic backgrounds. Second, the use of interviews has some limitations, such as the possibility of giving socially desirable answers, but also discomfort due to questions or answers. In addition, it is possible that parents whose children are less exposed to screens agreed to participate in the study since some evidence points out that nowadays parents of young children are less likely to admit that their children engage with DT (e.g., Pew Research Centre, 2020). In addition, this study was conducted online through the Zoom platform, which in some ways limited the possibility of discussion and allowed the 'quieter' participants to avoid sharing their thoughts. Children of this age still do not have good insights on their behaviour, nor do they have a realistic view of the world. They focus mainly on the positive effects of device use and believe that it can't hurt them (Almuaigel et al., 2021). We suggest the use of other methods of data collection (e.g., observations) when studying children at this age.

The findings of the present study point to the importance of parental beliefs about children's DT use because they can shape parental behaviour regarding children's device use. Parents are sometimes unaware of the dangers lurking behind the screens, as well as the fact that they exhibit a considerable amount of control over their children's screen time. Considering this, parents should be educated further about the potential risks that their children may be exposed to online. Also, it is important to inform the parents of the importance of developing children's self-monitoring and self-control skills during DT use.

Considering the three organisational aspects of the developmental niche framework (contemporary redundancy, thematic elaboration, and the linking of dispersed elements) that create particularly important developmental outcomes (Super & Harkness, 2002), future research should investigate and consider the characteristics of the niche in the context of children's DT use. Because the first aspect is to account for contemporary redundancy, mutually supporting the repetition of DT use from different parts of the child's environment (e.g., family, peers, school, culture) during the same developmental period could lead to robust habits of the child's DT use, which may not be good habits at all. Considering thematic elaboration as the second aspect, repetition and cultivation of core symbols and positive meaning systems related to DT use over time could also strengthen the potential good or bad habits of DT

use among children. In terms of the third aspect, the linking of dispersed elements, such as child-owned constant use, parental provision of digital devices and encouragement for use without setting rules, as well as social norms that support DT use among children, can result in qualitatively new phenomena, such as the problematic use of DT among children. Future research that considers the characteristics of each niche can provide a better understanding of children's behaviours and emotions in the context of DT use and various outcomes in child development.

CONCLUSION

According to children aged 4 to 8 years in Croatia, their favourite digital device is a smartphone. Their favourite digital activities include playing games, watching videos, and cartoons, and the main motivation for device use is entertainment. Parental motivation for allowing children to use devices is both parent- and child-oriented. Parent-oriented motivation is based on the parent's need to calm the child and ensure that they remain quiet in specific situations, and child-oriented motivation is based on the child's need for fun and entertainment. Parents emphasised the educational value of devices used as a basic advantage, but they also worried about the addictive nature of these devices, as well as certain physical, behavioural, emotional, and cognitive effects on their children due to device use. These findings indicate that the children's developmental niche related to DT is characterised by small, portable devices used mainly for entertainment, with parents' allowing the use of such devices because they believe in the positive impact on child development and the need to occupy children's attention in specific situations, while setting limits on the use because of the awareness of the negative impacts on child development.

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