Research Article

Children's motivation for digital technology use: parents and children's perspective

Vanesa Varga ✉ ⓘD and Marina Kotrla Topić [2] ⓘD

[1] Catholic University of Croatia, Zagreb, Croatia

[2] Institute of Social Sciences Ivo Pilar, District Center Osijek, Croatia

ABSTRACT

Since the use of digital technology (DT) has become a significant part of children's everyday life, one of the main questions is why and for what purposes children use DT. This paper aims to explore categories of motivation for DT use among Croatian children aged 9 to 15 years, and their rate of occurrence, from the perspective of children (18 boys; 13 girls; average age = 11) and their parents (3 fathers; 28 mothers). Focus groups with children as well as their parents were conducted online via Zoom, in spring 2021. Results show that both children and their parents state following motives for children's use of DT: fun and entertainment, interaction and communication, relaxation, and rest, learning and seeking information. Furthermore, children, but not their parents, state as their motives time pass and boredom, and Fear of Missing Out. This research contributes to a better understanding of the reasons why children use DT, provides a taxonomy of motives, and shows that children's motives for DT use are universal to different life circumstances.

Keywords: children, digital technology, parents, motivation, qualitative research

✉ Corresponding author email: vanesa.varga@unicath.hr

Introduction

Digital technology (DT) refers to all types of electronic devices and applications (Sioshansi, 2019) such as tablets, smartphones, and digital activities such as gaming, social media, etc. (Kardefelt-Winther, 2017). Recent research points out that school-aged children spend around 5 or 6 hours a day using DT (e.g., Spina et al. 2021). The research also states that school-aged children and adolescents use DT for communication, playing, schoolwork, etc. (e.g., Ichhpujani et al., 2019; Martin et al., 2018). The effects of DT can be both positive, and negative. For example, DT can be a source of enjoyment, and help develop cognitive skills, knowledge, and social and communication skills (e.g., Bae, 2019). However, overuse of DT is usually associated with negative effects such as depression and anxiety, headaches, neck pain, and sleep problems (e.g., Abendroth et al., 2020).

When it comes to the context of the COVID-19 pandemic research points to a rise in time spent on DT for entertainment (e.g., López-Bueno et. al., 2022; Nagata et al., 2022), and for schoolwork due to home confinement (e.g., Andrew, et al., 2020; Brom et al, 2020). Research also states that children used DT during the pandemic to occupy themselves when they are bored, connect with friends, find school information, and regulate their emotions (e.g., Langmeyer et al., 2022). However, little is known regarding specific changes in motivation for DT use that happened in these circumstances since they have not been explicitly researched. Koran et al. (2022) showed that the main purpose for DT use in children is playing and communication with their friends, both before the pandemic and during the lockdown, indicating that there was no change in motivation. Since the context of the pandemic has led to the rise in time of DT use it would be useful to understand the motivation for its use in order to be able to channel this motivation to other activities besides DT, to minimize its negative effects.

Generally, the motivation for DT use can be separated into positive, and negative. For example, Barker (2009) states that the motivation for school children and adolescents to use DT is a different, fun, and attractive way to communicate, play, and share information with their peers, but it also provides

a way for them to pass time, entertain themselves and learn. Goh et al. (2015) found that for children in the first and second grades of primary school two main motives for computer usage are e-learning and playing games. Hundley & Shyles (2010) investigated teenagers' awareness of the functions DT serve in their lives. They emphasized socializing and entertainment. In addition to the positive aspects of motivation, some researchers emphasize negative motivational aspects. For example, Throuvala et al. (2018) hypothesized that adolescent motivational factors are also driven by dysfunctional mechanisms like FoMO ('Fear of Missing Out') or the need to be online to avoid feelings of apprehension when one is absent from a rewarding experience that others may have. In addition, motivation for DT use can also be related to the overuse of DT. For example, Meng et al. (2020) examined the association between smartphone overuse and smartphone motivation in adolescents and showed that hedonic motivations are associated with problematic use while instrumental motivation is not. Therefore, positive motivation can be associated with some good outcomes such as learning (Goh et al., 2015) but negative motivation could lead to unwanted outcomes in children such as more time spent on DT use (Meng et al., 2020).

Studies on general motives for DT use, as well as comprehensive information about school children's and their parents' perception of motives regarding children's DT use, are scarce. Most research focuses on social media. For adolescents, social media is a tool for communication with friends and family, a source of information, learning and validation, a source of inspiration for one's interests, obtaining a positive mood, self-presentation, and self-expression, and others (Jarman et al., 2021; Throuvala et al., 2018). Other research is focused on smartphones. Young people use them because they are convenient to use, make them feel like adults, help them to relax, express status and identity, etc. (Ahad & Anshari 2017; Wilkinson & Saldaña, 2018).

One possible theoretical framework of the DT motivation research is the Uses and gratification theory which explains how and why people use media in general, stating that people actively choose the media they will use (Katz et al., 1973). Also, the social and psychological needs or gratifications that are met when

people use media (Blumler, 1979). Five basic needs obtained from media are cognitive (acquiring information, knowledge), affective (acquiring pleasurable and emotional experiences), personal (acquiring confidence, status, stability), social (acquiring contact with friends, family), and tension release (escapism and diversion) (Bayer et al., 2016; Katz et al., 1973). Following the theory Whiting & Williams (2013) list the following uses and gratification for social media use in young people: social interaction, information seeking, pass time, entertainment, relaxation, communicatory utility, and convenience utility. To the best of our knowledge, this theoretical framework has not been applied in the exploration of general DT use motivation in children.

Current study

This paper aims to explore categories of motivation for DT use among Croatian children aged 9 to 15, from the perspective of children and parents, the rate of occurrence of these categories of motives in children's and parent's group discussions, and to provide a preliminary taxonomy of motives. The research questions are - what are the categories of motivation for DT use in children; what are the similarities, and differences in children's and parents' perception and recognition of children's motivation for DT use, and what motives are most dominant in both perspectives. Focus group discussions were chosen because they allow researchers to obtain and increase understanding of the two perspectives on motivation for DT use, the level of consensus within a discussion group, and the possible differences between the two perspectives. The cultural aspect of motivation for DT use is also important because previous research points to cultural differences in the way children use DT (Jackson et al., 2008). To the best of our knowledge, there are no previous studies regarding children's motivation for DT use in Croatia. When it comes to DT use in Croatia, 98% of pupils and students use the Internet daily, and they mostly access it through mobile phones (Croatian Bureau of Statistics, 2019). Finally, studies on various aspects of DT use are not often focused on early adolescence and considering the changes in DT use in life span it is important to monitor and further investigate the motivation for DT use in early adolescence because it might

provide valuable data for the development of practical recommendations for children's DT use before their entering to adolescence.

The data presented here are a part of a qualitative study which is conducted under the research project "Digital technology in the family: patterns of behavior and effects on child development".

Materials and Methods

Design

The design of the research was made for a variety of themes that are in the research focus of the project such as general DT use among children, parental mediation, etc. For this paper, we focus only on the questions related to the motivation for DT use in children. The research design included two sets of structured questions, for parents and children., which were designed by the project research team.

Children in group discussion were asked: *What do you do on your digital devices? What is your favorite thing to do? Which digital device do you use most often? There are various reasons to use the devices. Which ones are yours? What is the most useful thing you have learned and how did you use the device?* etc.

The questions for the parents were: *Can you describe to us how it most often looks like when your children use digital devices at home. (Where are they in the apartment house, are they alone or in the company of others, do they choose what they will do on the device or in agreement with you, and what does it look like when they have to stop using the device?),* etc.

Recruitment

The recruitment process started on February 3rd, 2021, with the first e-mails sent to schools in Croatia and finished on May 4th, 2021. The recruitment package consisted of the following materials: the Permission of the Ministry of Science and Education of the Republic of Croatia to conduct the research, the Permission of the Ethics Committee of the Catholic University of Croatia to conduct the research; An Example of the Participant Consent for parents and

children, and An Invitation to participate in the research for school websites. These documents were sent to a pre-prepared list of elementary schools in Zagreb and Osijek. The invitation was also published on the official website and social media profiles of the Catholic University of Croatia and the project D. E. C. I. D. E.

Sample and procedure

The parents who contacted the researchers were sent the Participant Consent for parents and children to sign it. Parents were contacted to arrange the date and time when they and their children were available. Before the beginning of the session, participants were informed by the moderator about their rights, that the session will be recorded, that the material will be transcribed and destroyed after transcription, and that their names in the transcript will be changed. In total, nine focus groups with children were conducted via Zoom from March, 30th to May 5th, 2021 (number of participants ranging from 2 to 5), and eight focus groups with parents were conducted via Zoom from March 30th to May 4th, 2021 (number of participants ranging from 3 to 5). All participants, parents, and children received a coupon to visit a local ZOO. The sample consists of 31 children (18 boys; 13 girls; average age = 11) (Appendix A), and 31 parents (3 fathers; 28 mothers) (Appendix B).

Data Analysis

The organization of codes for the data analyses was inspired by the Uses and gratification theory. The research team adapted the above-mentioned Whiting & Williams (2013) list of motives. Motives for interaction and communication were perceived as similar by children and parents and were merged into one category. The same was with learning and searching for information. Children's and parents' focus groups were analyzed separately, according to the same categories. The unit of the analysis was one broad statement. They were determined by a keyword approach (e.g., fun, rest, relax). Two coders separately coded 159 statements. They agreed on a total of 126 statements (93 statements by children, and 33 by parents). The inter-rater

reliability for children's groups is 87.74%, and for parents' it is 62.62%. The final inter-rater reliability is 79.25%. The final step was calculating the rate of occurrence for each motive. This provided the researchers with a basis for a short taxonomy that depicts each category of motives.

Results

The statements on children's motives for DT use from children and parents' discussions were organized into the six categories as followed: C1 (entertainment and fun), C2 (interaction and communication), C3 (time pass and/or boredom), C4 (relaxing and rest), C5 (learning and searching for information) and C6 (Fear of Missing Out - FoMO). For each category, we first present findings from group discussions.

Entertainment and fun

One of the most often stated motives for DT use in children is fun and entertainment. It was stated by children in 26 (27.96%) statements. Here are examples from focus groups.

F19 (girl, 14): *Mostly for fun and communicating with the world, actually.*

Sometimes, children gave examples of specific devices to better explain what is used for fun:

F15 (boy, 10): *I use PlayStation because it entertains me. I'm happy when I play.*

For parents, entertainment and fun were present in 8 (24.24%) statements. The parental statements are more elaborate and reflect a disagreement with their children's use of DT for entertainment because they feel other types of entertainment, are being neglected.

MF21 (mother of girl, 15): *Even fun, for them it is the only form of entertainment. They don't know how to have fun at all anymore, like we used to.*

Interaction and communication

The most often stated motive for DT use by children is interaction and communication (32 statements, 34.41%). They frequently mention smartphones which they use for texting with friends or for calling them.

F36 (boy, 10): *My favorite is my smartphone, (…) because I can use my smartphone to communicate with my friends with calls and text messages.*

They also mention apps they use in order to interact and communicate, like WhatsApp and Viber.

F32 (boy, 10): *I use WhatsApp the most because, I don't know, that's where people send me the most messages. Friends, mom, dad.*

Another aspect of communication that emerges from children's discussions is communication with the purpose of arranging a face-to-face meeting.

F09 (boy, 15): *To have fun, or to arrange with someone to meet somewhere, see each other, at basketball.*

Parent's answers confirm this motive (16 statements, 48.48%). They emphasized that children's motivation to use apps for communication is noticeable in chat groups. They also make audio recording of the messages on the apps:

MF06 (mother of boy, 10): *I figured out that on WhatsApp he has his own school group, they often record themselves, they don't feel like typing, then they send those recordings.*

Also, children use apps for communication with friends. They emphasize chat groups can be useful, as a source of information and even for socialization.

MF25 (mother of boy, 10): (…) *class groups which he uses as a good source of information, so not everything they have on those smartphones is bad, some groups they have are related to their sports* (…)

Parents state the benefits of the DT use due to certain circumstances, like living far away, and the COVID-19 pandemic.

MF14 (mother of girl, 9): *We are now in the circumstances that we are not in the part of town where she goes to school. Well, she can't go out on her own when she wants to, so she spends a lot of time communicating with her friends, mostly on smartphone.*

Time pass and boredom

Children state boredom as one of the motives for DT use quite often. This motive is present in 20 statements (21.51%). The parents did not mention these motives. One specific context mentioned when children use DT out of boredom is morning.

F01 (boy, 14): *Instagram, when I wake up in the morning, or when I'm bored.*

Furthermore, children state that they pick up a certain device because they perceive there is nothing else to do. Therefore, the context of the situation causes boredom.

F02 (boy, 11): *Well, I play more because I'm in the countryside, there's no one here, and the weather isn't nice. And my brother doesn't really like being outside.*

Relaxing and resting

To a lesser extent, children state relaxing and resting as one of the motives. This is mentioned in four statements (4.30%). Their parents did not mention those motives as much as children. There was only one reference to it (6.25%).

MF19 (mother of girl, 14): *For me, the first association is rest and relaxation, and a smartphone.*

Children state they use DT in order to relax and have a break from schoolwork.

F16 (girl, 10): *After school I go on my smartphone for a while, to take a break and then I write homework.*

Learning and searching for information

Children's motive to use the DT is also to obtain information and to learn. This motive is present in nine statements (9.68%).

F01 (boy, 14): *If I need to research something for school, I primarily work on my smartphone because it's easier for me.*

Parents state that children's motive to use the DT is online schooling. They refer to this motive in eight statements (24.24%), they use it for school and to find information that interests them.

MF26 (mother of boy, 9): *(...) he uses it for research through Google, let's say he follows it very well - astronomy.*

Fear of Missing Out (FoMO)

Finally, Fear of Missing Out was not mentioned as a motive in parents' discussions, but it was mentioned two times in children's discussions (2.15%). This is a very low occurrence rate, but it is important to consider that even children in this age range do mention this motive for DT use. Children perceive it as a need to be included in communication because of their high interest in what is being said.

F14 (girl, 9): *Sometimes my friends send me messages, then I get so interested that I can't contain myself.*

Rate of occurrence of different motives for DT use in children

For both children and parents, the most often mentioned motive for DT use in children is interaction and communication (25.39%), and also in parents (48.48%). The second most-often mentioned motive in children is fun and entertainment (20.63%), and also in parents (24.24%). For parents, the same number of statements refer to learning as well (8, 24.24%). This is not the case for children themselves (9.68%).

For children, the third most often mentioned motive is boredom (20, 21.51%), which is not mentioned by parents. Finally, relaxing and resting were mentioned only four times by children (4.30%) and one time by parents (6.25%),

while FoMO was only mentioned two times by children (2.15%), and not at all by parents. This provided the researchers with a basis for a short taxonomy of phrasings that depict each category of motives. The results are presented in Table 1.

Table 1

Taxonomy of children's motives for DT use based on study data

Motivation category	Paraphrased statements from children and/or parents reporting why children use DT
Entertainment and fun	To have fun.
	For entertaining.
	Because it makes them happy.
Interaction and communication	To communicate with others (friends and family) with texts, messages, calls, or video calls.
	To arrange with someone to meet somewhere.
	Chat rooms with friends and/or teachers.
Time pass and boredom	Because of boredom.
Relaxing and resting	To rest after school.
	To take a break.
	To relax.
Learning and searching for information	To research something for school.
	To make presentations.
	For school.
	For homework.
FoMO	The interest is so high that the person cannot contain themselves.
	Have to be reachable.

Discussion

The results show that interaction and communication are the most often mentioned motives in children's and parents' statements. Children mentioned devices such as smartphone, and applications like WhatsApp for texting with friends. Other research also shows that teens use DT to communicate and socialize (e.g., Barker, 2009; Ichhpujani et al., 2019). Both parents and children in this study consider this to be a good and valuable motive for DT use. Children communicate with friends through game apps or consoles, but this type of communication is left unnoticed by parents, who report children using chat rooms to communicate. This is a valuable observation because when parents report other motives for their children's DT use, such as fun, they talk about it with a level of disapproval, while their children are enthusiastic about it. It might be that if they had a better understanding that these motives are interrelated, they would exhibit less disapproval regarding children's use of gaming apps. Such disapproval, resulting from differences in understanding motivation, might result in more parent-child conflict, and a better understanding might help eliminate that. The motive to use DT for interaction and communication in children at this age is not surprising. Peer communication is vital during adolescence for their mental well-being (Bianchi et al., 2020). Relations with peers in adolescents are positively related to their life satisfaction (Proctor et al., 2009), and difficulties in peer communication mediate the relationship between self-esteem and life satisfaction in adolescence (Szcześniak et al., 2022).

The study was conducted in the COVID-19 pandemic context and although the research questions did not refer directly to the pandemic the participants did mention it on their own. The motive for communication is especially important in the context of the pandemic. Parents mention how due to quarantines, children were unable to socialize with their friends in person, so they regard DT as a kind of savior and form a positive perception of DT in the context of communication and socializing. Children, but not parents, mentioned the use of DT for communication with friends in order to arrange a face-to-face meeting, which again points to discrepancies in understanding the full range of motivation for children's DT use between children and parents. One similar study

also shows that the main purpose for children to use DT during the lockdown is communication, and playing (Koran et al., 2022). In a study on adolescents' psychological well-being after the second prolonged lockdown due to the COVID-19 pandemic, Jusiene et al. (2020) found that the lack of face-to-face communication with peers was very important for predicting depression risk in adolescents.

As mentioned, parents expressed concerns regarding children using too much DT, especially for entertainment and fun, which is the second most often mentioned motive in both perspectives. Other studies also show that children use DT for entertainment or non-school work-related activities (e.g., Anthony, et al., 2021). Parents in this study also indicate that they are unhappy with the amount of time children spend using DT for fun and entertainment because they fear their children choose devices as a sole way of having fun. Some believe that DT has replaced other ways of having fun, such as playing outdoors. Children do not share their point of view. They use gaming consoles and apps to arrange to meet in person with their friends which again shows that some motives for their use of specific DT might be misinterpreted by their parents. While parents believe that children prefer activities on DT over other types of entertainment it seems the children resort to DT when other types of entertainment are unavailable.

The occurrence of references to learning and informational motivation is similar in both perspectives. Children use DT for school purposes which are in accordance with previous research (e.g., Drouin, et al 2020). Parents also state that children's motive to use the DT is online schooling and to find information that interests them. Considering the occurrence of online classes for at least some of the children, it was expected that motivation for learning is mentioned more often and elaborated in more detail. A possible explanation is that when considering motivation for DT use, both children and their parents considered primarily intrinsic motivation. Online classes are not the choice of children themselves, but rather a result of specific circumstances.

Regarding other categories of motivation, the results show more discrepancies between children's and parents' perspectives. For example, Fear of

Missing Out was not mentioned by parents but was stated, although rarely, by children. In adolescents increased need to belong and to be popular is associated with increased use of social media (Beyens, et al., 2016). Parents in this study seem to not recognize this need. It might be that for children some motives are important and valid, and for parents, they seem less meaningful.

Time-pass and boredom are other motives for DT use mentioned by children, but not by parents. While fun and entertainment seem to be related to actively choosing to do something that entertains them, time-pass and boredom are passively driven motivations. The time-pass motive to use DT in the morning, at a wake-up time is mentioned several times. The context of not having anything else to do, friends not being available, holidays, etc. usually leads to children picking up a device (e.g., Iwanicka & Iwanicka, 2020). This type of use, which is not motivated by a specific wish to use DT but rather by the need to fill out time, might offer space for the creation of intervention regarding minimizing DT use in children. By offering children activities to fill out shorter periods when they feel bored, it would be possible to lower their DT use. Finally, children and parents state relaxing and resting as one of the motives for DT use (e.g., Hidding et al., 2017). It seems that children usually rest from schoolwork by using the DT.

Code frequency supplies researchers with an objective measure of the prevalence of an attitude between and within groups (Breen, 2006). In this case, the level of occurrence of specific motives can be regarded as a level of importance showing that interaction and communication, and fun and entertainment are considered by both perspectives as the most important motives for DT use. It is also possible that the motivation for DT use varies across different countries, but to investigate these hypotheses further cross-cultural research is needed. Some motives may be important for a particular person or group, or even be related to a certain context, however, the code frequency gives good insight into what comes to mind first, and it shows a level of salience within the discussion. Range of motives that both perspectives report points to a conclusion that the motives for children's use of DT are universal across different life situations. The short taxonomy of phrasings that children and parents used to describe children's motivation for DT use provides researchers

with the foundation for further research, specifically for the development of scales aiming to further investigate this topic.

Limitations and suggestion for future research

Although this research contributes to a better understanding of the motives for DT use in children, certain limitations are present. The sample in this study prevents the conclusions to be generalized. Furthermore, focus groups are a great way to gain insight opinions, but certain motives are possibly not stated. This is also due to the design of the research, which covered several topics, and the motivation for using DT is only one part. Future research on the motivation to use DT should be examined with more complex survey questionnaires for parents and children.

Conclusion

Regarding the motives for the DT use in children aged 9 to 15 years in Croatia, this research identified several categories. Both children and parents most often mention interaction and communication, followed by fun and entertainment, learning, and seeking information, and finally relaxation and rest. Two categories of motives were mentioned only by children, and these are time pass and boredom, and FoMO. The Uses and gratification theory provided us with a good framework for DT motives analyses in children. This research gives an overview of the motivation for DT use among Croatian children thus filling in the gap in the existing literature on DT use in the regional context. Providing different perspectives allowed researchers to detect differences that might be considered a source of child-parent conflict regarding children's DT use. Research that uses a focus group approach and a parent-child perspective is particularly lacking. Furthermore, this research has pointed out a certain fear of parents because children sometimes choose the DT devices for entertainment purposes over other ways of having fun that they might see as better. Children recognize a practical side of the DT since it helps them interact with friends and family, but also more superficial ways of using DT due as time pass and boredom. These results offer a starting point for the development of guidelines aiming to help

parents to better understand the children's motivation for DT use and to help children to choose different activities when they are bored, besides using DT.

Note

Part of the results have already been presented to a public at the The European Conference on Media, Communication and Film, London, 2021.

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Data availability statement

For further details on data, contact the corresponding author of the manuscript.

Conflict of interest

We have no conflicts of interest to disclose.

References

Abendroth, A., Parry, D. A., le Roux, D. B., & Gundlach, J. (2020). An Analysis of Problematic Media Use and Technology Use Addiction Scales – What Are They Actually Assessing? *Responsible Design, Implementation and Use of Information and Communication Technology: 19th IFIP WG 6.11 Conference on e-Business, e-Services, and e-Society, I3E 2020, Skukuza, South Africa, April 6–8, 2020, Proceedings, Part II, 12067*, 211–222. Retrieved from https://link.springer.com/chapter/10.1007/978-3-030-45002-1_18

Ahad, A. D., & Anshari, M. (2017). Smartphone habits among youth: Uses and gratification theory. *International Journal of Cyber Behavior, Psychology and Learning (IJCBPL), 7*(1), 65–75. https://doi.org/10.4018/IJCBPL.2017010105

Andrew, A., Cattan, S., Costa Dias, M., Farquharson, C., Kraftman, L., Krutikova, S., & Sevilla, A. (2020). The gendered division of paid and domestic work under lockdown. *Disscussion Paper Series, No. 13500*, 1–32. Retrieved from https://www.econstor.eu/bitstream/10419/223942/1/dp13500.pdf

Anthony, W. L., Zhu, Y., & Nower, L. (2021). The relationship of interactive technology use for entertainment and school performance and engagement: Evidence from a longitudinal study in a nationally representative sample of middle

school students in China. *Computers in Human Behavior, 122,* 106846. https://doi.org/10.1016/j.chb.2021.106846

Bae, S. M. (2019). The relationship between smartphone uses for communication, social capital, and subjective well-being in Korean adolescents: Verification using multiple latent growth modeling. *Children and Youth Services Review, 96,* 93– 99. https://doi.org/10.1016/j.childyouth.2018.11.032

Barker, V. (2009). Older adolescents' motivations for social network site use: The influence of gender, group identity, and collective self-esteem. *Cyberpsychology & behavior, 12*(2), 209–213. https://doi.org/10.1089/cpb.2008.0228

Bayer, J. B., Ellison, N. B., Schoenebeck, S. Y., & Falk, E. B. (2016). Sharing the small moments: Ephemeral social interaction on Snapchat. *Information, Communication & Society, 19*(7), 956–977. https://doi.org/10.1080/1369118X.2015.1084349

Beyens, I., Frison, E., & Eggermont, S. (2016). "I don't want to miss a thing": Adolescents' fear of missing out and its relationship to adolescents' social needs, Facebook use, and Facebook related stress. *Computers in Human Behavior, 64,* 1–98. https://doi.org/10.1016/j.chb.2016.05.083

Bianchi, D., Lonigro, A., Baiocco, R., Baumgartner, E. & Laghi, F. (2020). Social anxiety and peer communication quality during adolescence: The interaction of social avoidance, empathic concern and perspective taking. *Child Youth Care Forum, 49,* 853–876. https://doi.org/10.1007/s10566-020-09562-5

Blumler, J. G. (1979). The role of theory in uses and gratifications studies. *Communication research, 6*(1), 9–36. https://doi.org/10.1177/009365027900600102

Breen, R. L. (2006). A practical guide to focus-group research. *Journal of geography in higher education, 30*(3), 463–475. https://doi.org/10.1080/03098260600927575

Brom, C., Lukavský, J., Greger, D., Hannemann, T., Straková, J. & Švaříček, R. (2020). Mandatory Home Education During the COVID-19 Lockdown in the Czech Republic: A Rapid Survey of 1st-9th Graders' Parents. *Frontiers in Education, 5,* 103. https://doi.org/10.3389/feduc.2020.00103

Croatian Bureau of Statistics (2019). Usage of information and communication technologies (ICT) in households and by individuals.

Drouin, M., McDaniel, B. T., Pater, J., & Toscos, T. (2020). How parents and their children used social media and technology at the beginning of the COVID-19 pandemic and associations with anxiety. *Cyberpsychology, Behavior, and Social Networking, 23*(11), 727–736. https://doi.org/10.1089/cyber.2020.0284

Goh, W. W., Bay, S., & Chen, V. H. H. (2015). Young school children's use of digital devices and parental rules. *Telematics and Informatics, 32*(4), 787–795. https://doi.org/10.1016/j.tele.2015.04.002

Hidding, L. M., Altenburg, T. M., Van Ekris, E., & Chinapaw, M. J. (2017). Why do children engage in sedentary behavior? Child-and parent-perceived determinants. *International journal of environmental research and public health, 14*(7), 1–27. https://doi.org/10.3390/ijerph14070671

Hundley, H. L., & Shyles, L. (2010). US teenagers' perceptions and awareness of digital technology: a focus group approach. *New media & society, 12*(3), 417–433. https://doi.org/10.1177/1461444809342558

Ichhpujani, P., Singh, R. B., Foulsham, W., Thakur, S., & Lamba, A. S. (2019). Visual implications of digital device usage in school children: a cross-sectional study. *BMC ophthalmology, 19*(1), 1–8.

Iwanicka, A., & Iwanicka, A. (2020). Loneliness as a potential consequence of the presence of children in the digital world. *Interdyscyplinarne Konteksty Pedagogiki Specjalnej, 28,* 61–76. https://doi.org/10.14746/ikps.2020.28.04

Jackson, L. A., Zhao, Y., Qiu, W., Kolenic, A., Fitzgerald, H. E., Harold, R., & von Eye, A. (2008). Culture, gender and information technology use: A comparison of Chinese and US children. *Computers in Human Behavior, 24*(6), 2817–2829. https://doi.org/10.1016/j.chb.2008.04.007

Jarman, H. K., Marques, M. D., McLean, S. A., Slater, A., & Paxton, S. J. (2021). Motivations for social media use: Associations with social media engagement and body satisfaction and well-being among adolescents. *Journal of Youth and Adolescence*, 1–15. Retrieved from https://link.springer.com/article/10.1007/s10964-020-01390-z

Jusienė, R., Breidokienė, R., Sabaliauskas, S., Mieziene, B., & Emeljanovas, A. (2022). The Predictors of Psychological Well-Being in Lithuanian Adolescents after the Second Prolonged Lockdown Due to COVID-19 Pandemic. *International journal of environmental research and public health, 19*(6), 3360. https://doi.org/10.3390/ijerph19063360

Kardefelt-Winther, D. (2017). How does the time children spend using digital technology impact their mental well-being, social relationships and physical activity? An evidencefocused literature review. Florence: UNICEF Office of Research – Innocenti. Retrieved from http://resource-centre-uploads.s3.amazonaws.com/uploads/children-digital-technology-wellbeing.pdf

Katz, E., Gurevitch, M., & Haas, H. (1973). On the use of the mass media for important things. *American Sociological Review, 38*(2), 164–181. Retrieved from https://www.jstor.org/stable/2094393

Koran, N., Berkmen, B., & Adalıer, A. (2022). Mobile technology usage in early childhood: pre-COVID-19 and the national lockdown period in North Cyprus. *Education and Information Technologies*, *27*(1), 321–346. https://doi.org/10.1007/s10639-021-10658-1

Langmeyer, A. N., Guglhör-Rudan, A., Winklhofer, U., Chabursky, S., Naab, T., & Pötter, U. (2022). Resources of families adapting the COVID-19 pandemic in Germany: A mixed-method study of coping strategies and family and child outcomes. *Journal of Family Research*, *34*(1), 333–366. https://doi.org/10.20377/jfr-708

López-Bueno R, López-Sánchez, G. F., & Casajús J, (2020). Health-related behaviors among school-aged children and adolescents during the Spanish Covid-19 confinement. *Frontiers in pediatrics*, 573. https://doi.org/10.3389/fped.2020.00573

Martin, A., Booth, J. N., Laird, Y., Sproule, J., Reilly, J. J., & Saunders, D. H. (2018). Physical activity, diet and other behavioural interventions for improving cognition and school achievement in children and adolescents with obesity or overweight. *Cochrane Database of Systematic Reviews, 1*(1), 1–152. https://doi.org/10.1002/14651858.CD009728.pub3

Meng, H., Cao, H., Hao, R., Zhou, N., Liang, Y., Wu, L., & Zhang, J. (2020). Smartphone use motivation and problematic smartphone use in a national representative sample of Chinese adolescents: The mediating roles of smartphone use time for various activities. *Journal of behavioral addictions*, *9* (1), 163–174. https://doi.org/10.1556/2006.2020.00004

Nabi, R. L., Wolfers, L. N., Walter, N., & Qi, L. (2022). Coping with COVID-19 stress: The role of media consumption in emotion- and problem-focused coping. *Psychology of Popular Media*. Advance online publication. https://doi.org/10.1037/ppm0000374

Nagata, J. M., Ganson, K. T., Iyer, P., Chu, J., Baker, F. C., Gabriel, K. P., & Bibbins-Domingo, K. (2022). Sociodemographic Correlates of Contemporary Screen Time Use among 9-and 10-Year-Old Children. *The Journal of Pediatrics*, *240*, 213–220. https://doi.org/10.1016/j.jpeds.2021.08.077

Proctor, C. L.; Linley, P. A.; Maltby, J. (2009). Youth life satisfaction: A review of the literature. *Journal of Happiness Studies, 10*, 583–630. https://doi.org/10.1007/s10902-008-9110-9

Spina, G., Bozzola, E., Ferrara, P., Zamperini, N., Marino, F., Caruso, C., & Villani, A. (2021). Children and Adolescent's Perception of Media Device Use Consequences. *International journal of environmental research and public health*, *18*(6), 3048. https://doi.org/10.3390/ijerph18063048

Szcześniak, M., Bajkowska, I., Czaprowska, A., Sileńska, A. (2022). Adolescents' Self-Esteem and Life Satisfaction: Communication with Peers as a Mediator. *International Journal of Environmental Researsh and Public Health, 19*(7), 3777. https://doi.org/10.3390/ijerph19073777

Throuvala, M. A., Griffiths, M. D., Rennoldson, M., & Kuss, D. J. (2019). Motivational processes and dysfunctional mechanisms of social media use among adolescents: A qualitative focus group study. *Computers in Human Behavior*, *93*, 164–175. https://doi.org/10.1016/j.chb.2018.12.012

Whiting, A., & Williams, D. (2013). Why people use social media: a uses and gratifications approach. *Qualitative market research: an international journal*. 362–369. https://doi.org/10.1108/QMR-06-2013-0041

Wilkinson, K. T., & Saldaña, M. (2018). Texas millennials and their smartphones: A uses and gratifications study. *Journal of Cultural Marketing Strategy*, *3*(1), 31–42.

Appendix A

Children's group discussions data

Session	Participant	Gender	Age
Session 1	F01	boy	14
	F03	boy	13
	F19	girl	14
	F24	boy	13
Session 2	F10	girl	11
	F11	boy	11
Session 3	F06	boy	10
	F15	boy	10
Session 4	F09	boy	15
	F21	girl	15
	F25	boy	10
	F07	girl	12
	F12	boy	12
Session 6	F14	girl	9
	F17	girl	10
	F26	boy	9
	F28	girl	12
Session 7	F08	boy	14
	F18	girl	11
	F20	boy	14
	F30	boy	11
Session 8	F16	girl	10
	F23	girl	12
	F32	girl	10
Session 9	F29	boy	9
	F31	girl	10
	F34	boy	9
	F35	boy	10
	F36	boy	10

Appendix B

Parents' group discussions data

Session	Participant
Session 1	MF01
	DF03
	MF19
	MF21
	MF27
Session 2	MF02
	MF10
	MF11
	MF18
Session 3	MF06
	MF14
	DF15
Session 4	MF04
	MF09
	MF24
	MF25
Session 5	MF15
	DF17
	MF26
Session 6	MF07
	MF20
	MF23
	MF28
Session 7	MF08
	MF16
	MF32
Session 8	MF29
	MF31
	MF34
	MF35
	MF26