



PRESCHOOL CHILDREN'S USE OF DIGITAL TECHNOLOGY FROM THE PARENTAL PERSPECTIVE

POLONA GRADIŠEK¹ & POLONA GOLOB²

Potrjeno/Accepted
8. 5. 2026

¹University of Ljubljana, Faculty of Education, Ljubljana, Slovenia

²Anton Medved Kindergarten, Kamnik, Slovenia.

Objavljeno/Published
30. 6. 2026

CORRESPONDING AUTHOR/KOESPONDENČNI AVTOR

polona.gradisek@pef.uni-lj.si

Abstract/Izvleček

Preschool children increasingly encounter and use digital technology. This study explores how often they use it, for what purposes, and what content they engage with. A total of 166 parents of preschool children participated. Results show that screen time increases with age; children up to six years old use digital devices for up to 60 minutes daily, regardless of urban or rural living environments. Digital technology is most often used for entertainment, primarily to watch cartoons. The findings provide timely insight into digital technology use among preschool children.

Keywords:

digital technology, preschool children, parents, screens, use.

Uporaba digitalne tehnologije pri predšolskih otrocih z vidika staršev

Že predšolski otroci se srečujejo z digitalno tehnologijo in jo tudi uporabljajo. Preučili smo, kako pogosto predšolski otroci uporabljajo digitalno tehnologijo in s katerim namenom ter s katerimi vsebinami se pri tem srečujejo. V raziskavi je sodelovalo 166 staršev predšolskih otrok. Rezultati so pokazali, da čas uporabe digitalne tehnologije s starostjo otrok narašča, in sicer jo otroci do šestega leta starosti v povprečju uporabljajo do 60 minut dnevno ne glede na mestno ali podeželsko okolje bivanja. Tehnologijo najpogosteje uporabljajo za namen razvedrila, od tega najpogosteje gledajo risanke za otroke. Raziskava ponuja aktualen vpogled v uporabo digitalne tehnologije pri predšolskih otrocih.

Ključne besede:

digitalna tehnologija, predšolski otroci, starši, zasloni, uporaba.

UDK/UDC
373.2:004

DOI <https://doi.org/10.18690/rei.5442>

Besedilo / Text © 2026 Avtor(ji) / The Author(s)

To delo je objavljeno pod licenco Creative Commons CC BY Priznanje avtorstva 4.0 Mednarodna.

Uporabnikom je dovoljeno tako nekomercialno kot tudi komercialno reproduciranje, distribuiranje, dajanje v najem, javna priobčitev in predelava avtorskega dela, pod pogojem, da navedejo avtorja izvirnega dela. (<https://creativecommons.org/licenses/by/4.0/>).



Introduction

Children today grow up in digitally rich environments, where televisions, smartphones, and tablets are the devices most often in use (Konca, 2022; Rideout and Robb, 2020). They are exposed to digital technology from an early age, both by observing others and through their own use (e.g., watching cartoons, video calls, or playing games). While it has become an integral part of everyday life and offers many benefits, its excessive or uncritical use can lead to problems. Although there is little research on the use of digital technology among preschool children, it is important to examine digitalisation from early childhood onwards. This article therefore focuses on children's use of digital technology, considering both its benefits and risks.

Digital technology and its use in children

Research on children's use of digital technology has been increasing, though it is much more common among samples of older children than among preschoolers (Kovačič and Zakrajšek, 2017). Findings on children's daily screen time vary greatly and indicate that screen use increases with the age of preschool children (Cao et al., 2024), while the age at which children begin using digital technology has shifted to an earlier age (Rideout and Robb, 2020). Additionally, technology use may increase during specific periods, such as the COVID-19 pandemic, even among preschool children (Bergmann et al., 2022). According to research findings, preschool children's screen time is up to 2.5 to 3.5 hours per day and is primarily spent watching videos on television or on the YouTube platform (Konca, 2022, Rideout and Robb, 2020). Slovenian preschoolers likewise spend most of their screen time watching television and video content, but for approximately one hour per day (Rek et al., 2022).

Preschool children's use of technology may also vary depending on their living environment, which is closely related to different parenting approaches (Li and Liu, 2025), parents' education (Xie et al., 2025), family income, and access to technology (Cao et al., 2024). Parents in rural environments may view technology more positively but tend to use it for entertainment and to monitor their children's use less, whereas parents in urban environments more often support the development of their children's digital literacy and use technology for educational purposes (Cao et al., 2024; Li and Liu, 2025; Xie et al., 2025).

Digital technology and child development

It is important to build a healthy foundation for the development of children's future digital competences, which are essential for their future in a digital world (Weber and Greiff, 2023). An important aspect of media literacy is the ability to use technology safely (Blažević and Klein, 2022), which can be actively fostered even in the preschool years. The need for digital technology use is also evident in the field of contemporary early childhood education (i.e., in preschool settings) (Tokić et al., 2025). Ideally, the use of digital technology in the preschool years should support specific developmental goals, e.g., using a computer to learn colours or numbers (Chaudron et al., 2018).

While technology can enhance learning opportunities, it can also pose risks for various adverse outcomes. The effects depend primarily on the type of content to which children are exposed and the developmental appropriateness of such content (Harverson et al., 2025). Besides content, parental involvement and the quality of the parent-child relationship are particularly important (Harverson et al., 2025; Ma et al., 2024; Wang et al., 2023).

Positive aspects of digital technology use for child development

Digital technology can enhance children's language and literacy skills (Dolenc and Fošnarič, 2025; Liu et al., 2024), foster rapid decision-making, information processing, independent problem solving and multitasking (Clemente-Suárez et al., 2024; Gold, 2015), and support the development of concentration and hand-eye coordination (Tulimirović, 2015). Positive feedback within applications acts as reinforcement of learning (Summers et al., 2013). It is essential, however, that parents carefully select age-appropriate applications and engage in joint use. Video calls help maintain interpersonal relationships, which in turn contribute to children's sense of security (Chapman and Pellicane, 2015), an issue that was of particular importance during the COVID-19 pandemic.

Negative aspects of digital technology use for child development

A review of recent research shows that nearly half (48.34%) of preschool children use technology excessively, and approximately a quarter of them (26.83%) show signs of problematic use (Harverson et al., 2025; Wang et al., 2023). Consistent risk

factors for negative outcomes are early exposure to digital technologies, device use before sleep, and solitary use (Selak et al., 2025).

Excessive use of technology can have harmful effects on children's physical health, including lower sleep quality and duration (Merín et al., 2024), vision problems (Zdravniška zbornica Slovenije, n.d.-b), reduced physical activity and poor physical health (e.g., elevated risk of obesity and cardiovascular diseases) (Dolenc and Fošnarič, 2025; Li et al., 2020). In the cognitive domain, the development of attention, executive functions, literacy, and speech and language may also be hindered. For example, mobile device use among 18-month-olds has been linked to delays in expressive language (Van den Heuvel et al., 2019). Children who excessively use technology may also have less developed social skills, tend to be less emotionally stable and exhibit lower psychosocial well-being (Wan et al., 2021; Wang et al., 2023). Additionally, they may be more prone to behavioural problems associated with attention difficulties, hyperactivity, impulsivity, and aggression (Zoromba et al., 2023), particularly when technology is used for non-educational purposes (Harverson et al., 2025; Wang et al., 2023) and involves violent content (Li et al., 2020). These problems may also be related to impaired sleep quality and quantity, especially when screens are used in the evening, with even stronger effects observed in children who have devices in their bedrooms (Merín et al., 2024). Finally, because of the dopamine-driven pleasure that screen engagement provides, prolonged and increasingly intensive use can lead to addictive patterns of behaviour (Chapman and Pellicane, 2015).

The role of parents in children's use of digital technology

Parents play a crucial role in shaping their children's relationship with digital technology and serve as vital role models (Chapman and Pellicane, 2015; Rudnova et al., 2023; Wang et al., 2023; Wang et al., 2024). Children whose parents frequently use screens are themselves more exposed to digital content (Coyne et al., 2021; Konca, 2022). Parents should model healthy screen habits by limiting their own screen use and prioritizing direct interaction with their children through conversation, play, and active routines (Ponti, 2023).

Their parenting approaches related to technology use are important as well. If they are more permissive and have difficulty setting limits on technology use, behavioural problems are more common (Axelsson et al., 2025). Highly educated parents are more likely to use technology for educational purposes, thereby supporting their

children's development. In contrast, those with lower levels of education tend to view technology primarily as a source of entertainment, a leisure activity, and a way to keep children occupied (Xie et al., 2025). Parents also often use technology to help their preschool child regulate emotions (Coyne et al., 2021). The effects of digital technology use differ significantly depending on whether the parents are present while their children are using the technology (Ma et al., 2024). Unsupervised or excessive use of digital technology may disrupt the formation of primary attachment to parents, especially if adults themselves use devices during shared time. Even background television reduces the quality of parent-child interaction (Gold, 2015). Experts therefore recommend active parental involvement (e.g., watching cartoons together and discussing them) (Topić et al., 2021), as this promotes comprehension and engagement with the content (Vintar Spreitzer et al., 2021).

It is therefore important for parents to understand the effects of screen use, to limit the time their children spend with digital devices, and to monitor the content children consume (Vintar Spreitzer et al., 2021). To facilitate supervision, experts further advise against placing televisions and computers in children's bedrooms (Chaudron et al., 2018). Parents should teach responsible and critical use of devices (Tulimirović, 2015) and make children aware of potential online risks. Consistency in screen-related rules, provision of age-appropriate content (Polajner, 2019), and joint evaluation of media are essential. In this way, parents foster the development of digital and media literacy, critical thinking, and responsible online behaviour.

Research aim

The aim of the study is to empirically examine the extent and purposes of digital technology use among preschool children. Five research questions (RQ) were formulated:

- RQ1: How much time per day do preschool children of different ages spend using digital technology?
- RQ2: What is the relationship between children's age and the time they spend using digital technology?
- RQ3: For what purposes do preschool children use digital technology?
- RQ4: What types of content do preschool children encounter when using digital technology?

- RQ5: How does the time spent using digital technology differ between children living in urban areas and those living in rural areas?

Method

Participants

The study included 166 parents of preschool children in Slovenia, of whom 97% were women ($N = 161$) and 3% men ($N = 5$). The average age of the parents was 35 years ($SD = 4.9$; $min = 23$, $max = 55$). The largest proportion of parents (43.4%) were aged between 33 and 37 years, while the smallest group (0.6%) were aged 48 years or older.

Instruments

Data were collected through an online questionnaire administered to parents of preschool children, developed specifically for the purpose of this study. The questionnaire included demographic information (age, gender) about the parents and their children. Parents with more than one preschool child were instructed to select one child and respond with reference to that child throughout. The instrument consisted primarily of closed-ended items assessing children's access to and use of digital technology. Parents reported which digital devices their child had access to at home and estimated the time spent on each device daily. They also indicated the frequency of technology use for different purposes and the types of content their child encountered. All data were based on parental estimates rather than direct measures. Since the questionnaire captures concrete, observable behaviours rather than latent constructs, it does not represent a psychometric scale; therefore, indicators of internal consistency (e.g., Cronbach's α) were not appropriate. Instead, content validity was ensured through a review of relevant literature and by formulating clear and specific items. After the first fifty responses, two additional response options – photographs and video clips – were added to the question on content viewed, since these were frequently reported under “other,” thereby improving the clarity and completeness of the measure.

Procedure

Data collection took place in December 2023 and January 2024. Online questionnaires were sent to kindergarten principals, who were asked to distribute the questionnaire to parents. Parents were also invited directly through parenting groups

on Facebook. Participation was voluntary, and anonymity was assured. Participants needed approximately 8 minutes to complete the questionnaire.

Results

Daily use of digital technology by preschool children by age

We examined how much time preschool children of different ages spend using digital technology each day. Parents estimated their child's daily use of television, phone, computer, tablet, and other technologies on an ordinal scale ranging from "does not use" to "more than 3 hours per day." Tables 1 and 2 present the total time of technology use by age group. In calculating total values, the maximum of each interval was used (e.g., "up to 15 minutes" was counted as 15 minutes). Proportional percentages ($f\%$) are shown for each age group.

Table 1

Daily screen time among preschool children by age

Time per day		No use	∨ 15 min	∨ 30 min	∨ 60 min	∨ 90 min	∨ 120min	∨ 150 min	∨ 180 min	∧ 180 min
Age (years)	N	f (f%)	f (f%)	f (f%)	f (f%)	f (f%)	f (f%)	f (f%)	f (f%)	f (f%)
<1 year	1	1 (100)	0 (0)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0)	0 (0)	0 (0)
1–2 years	17	4 (23.5)	6 (35.3)	4 (23.5)	2 (11.8)	1 (5.9)	0 (0%)	0 (0)	0 (0)	0 (0)
2–3 years	19	2 (10.5)	3 (15.8)	8 (42.1)	3 (15.8)	1 (5.3)	1 (5.3)	1 (5.3)	0 (0)	0 (0)
3–4 years	36	5 (13.9)	8 (22.2)	7 (19.4)	10 (27.8)	4 (11.1)	2 (5.6)	0 (0)	0 (0)	0 (0)
4–5 years	41	1 (2.4)	7 (17.1)	9 (22)	13 (31.7)	4 (9.8)	3 (7.3)	3 (7.3)	1 (2.4)	0 (0)
5–6 years	47	1 (2.1)	4 (8.5)	8 (17)	18 (38.3)	6 (12.8)	5 (10.6)	2 (4.3)	0 (0)	3 (6.4)
≥6 years	5	0 (0)	0 (0)	1 (20)	2 (40)	0 (0)	1 (20)	0 (0)	1 (20)	0 (0)

Among children aged one to two years, the largest share used digital technology for up to 15 minutes per day, while a smaller share used it for up to one hour daily. Among two- to three-year-olds, half the children used digital technology for up to

30 minutes per day. From age three onwards, longer usage times became more common. In the 3-4- and 4-5-years groups, the largest proportion of children spent up to 60 minutes per day (27.8% and 31.7%, respectively). A similar pattern was observed among children aged 5-6 years, where the highest proportion (38.3%) also fell within this range, alongside a noticeable increase in children exceeding 120 minutes of daily use. Although the subsample of children aged 6 years and older was small, the data suggest more variability, including cases of both moderate and higher usage durations. Overall, the findings show a gradual shift from minimal or no use in the youngest children toward more frequent and prolonged daily use of digital devices with increasing age.

Table 2 further shows the median daily screen time by age group. One- to two-year-olds used digital technology for an average of 15 minutes daily, two- to four-year-olds for about 30 minutes, and children older than four years for about 60 minutes.

Table 2

Median daily digital technology use (minutes) among preschool children by age group

Age	N	Median (min/day)
<1 year	1	0
1–2 years	17	15
2–3 years	19	30
3–4 years	36	30
4–5 years	41	60
5–6 years	47	60
≥6 years	5	60

In accordance with the second research question, we examined the relationship between children's age and the time they spent using digital technology using Spearman's correlation coefficient. For this statistical analysis, children's age was expressed in months to allow for a more accurate examination of the association between age and digital technology use, while the time of digital technology use was calculated in minutes based on the maximum value of each interval on the ordinal scale. The correlation was statistically significant, positive, and moderately strong, indicating that older preschool children spend more time using digital technology (Table 3).

Table 3

Spearman correlation between children's age and time of digital technology use

	Time of digital technology use
Age	.42**

** $p < .01$

Purpose of digital technology use among preschool children

Parents reported how frequently their children used devices for different purposes. Figure 1 shows the share of children using digital technology for each purpose, while Figure 2 details usage by the children's age.

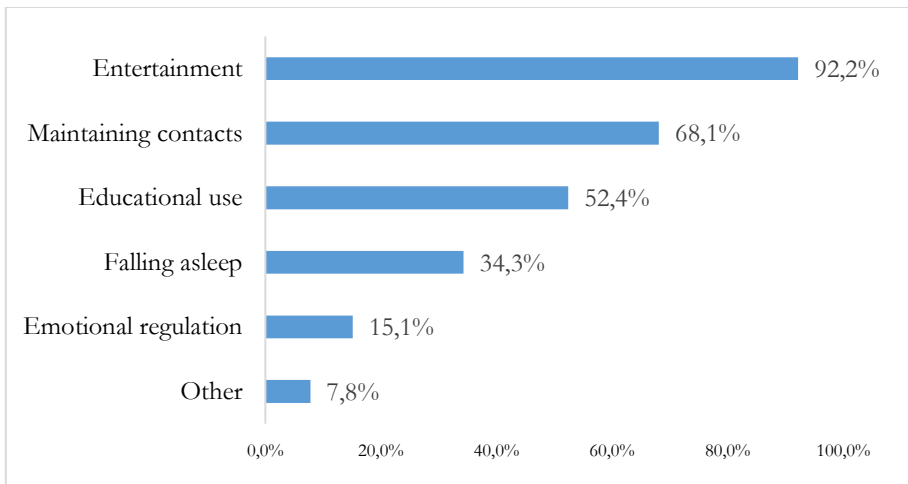


Figure 1

Purposes of digital technology use among preschool children

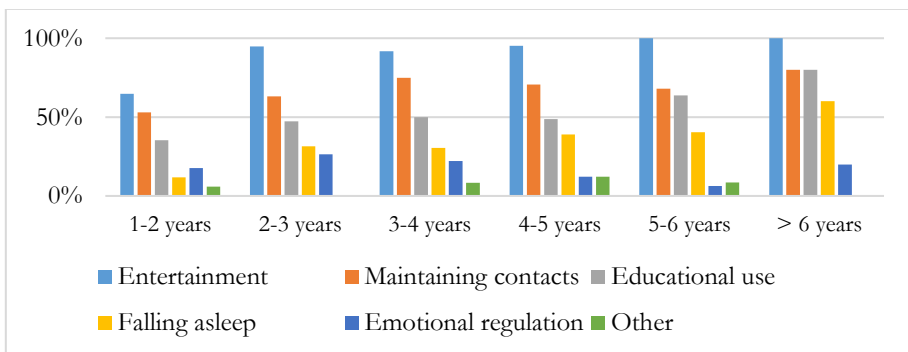


Figure 2

Purpose of digital technology use among preschool children of different age groups

Figures 1 and 2 indicate that most preschool children (92.2%) use digital technology for entertainment (i.e., watching cartoons or videos, looking at photographs, or playing games). Maintaining contact with relatives followed (68.1%), with the highest proportion among children older than six years. Educational use (e.g., learning colours, numbers, or languages) was reported for 52.4% of children and increased with age. About one-third (34.3%) of preschool children used technology to fall asleep, a share also increasing with age. Moreover, 15.1% of preschool children used devices for emotional regulation in stressful moments, the highest proportion in the 2-3 years age group. A small proportion (7.8%) used technology for other activities, such as dancing, exercising, or while brushing their teeth.

Content most frequently viewed by preschool children

As part of the fourth research question, we examined the types of content preschool children most frequently consumed. Figure 3 shows the categories of content, while Table 4 provides details on frequency.

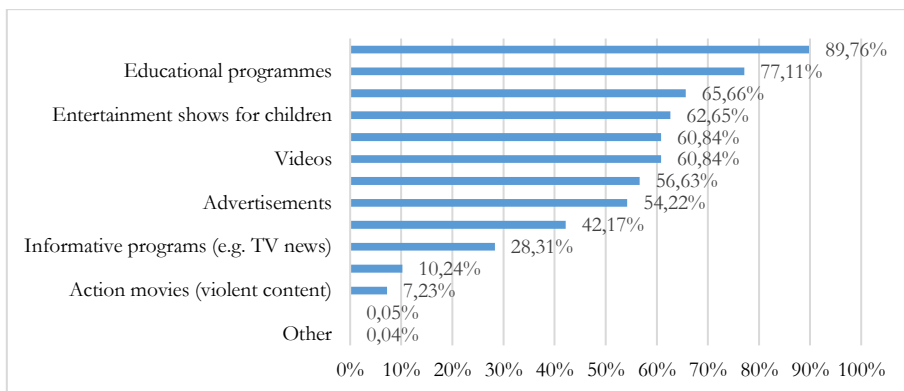


Figure 3

Content viewed by preschool children

The vast majority of children (89.8%) (Table 4) watched cartoons, with 26.5% doing so daily and 32.5% several times per week. Educational programmes for children were watched by 77.1% of children, and entertainment shows for children by 62.7%. Sports competitions were watched by 54.2%, most often less than once a month

(21.1%). Almost half the children (45.8%) never watched advertisements. Action movies were viewed by 7.2% of children, mostly rarely, and adult TV series by 4.8%. Parents also reported additional content such as listening to music, watching tractor videos, and puppet shows.

Table 4

Frequency of content viewed by preschool children

	Multiple times/ day	Daily	Several times/ week	Once/ week	Once/ month	< Once/ month	Never
Cartoons	5.4%	26.5%	32.5%	15.1%	5.4%	4.8%	10.2%
Educational programmes	0.0%	6.0%	21.1%	21.1%	13.9%	15.1%	22.9%
Photographs	0.0%	0.8%	18.7%	26.8%	19.5%	22.8%	11.4%
Shows for children	0.0%	2.4%	9.6%	22.9%	13.9%	13.9%	37.3%
Documentaries	0.0%	0.0%	7.2%	9.6%	20.5%	23.5%	39.2%
Videos	0.0%	0.0%	14.6%	24.4%	19.5%	23.6%	17.9%
Sports	0.0%	0.0%	7.2%	16.9%	11.4%	21.1%	43.4%
Advertisements	1.2%	10.2%	23.5%	6.6%	2.4%	10.2%	45.8%
Family movies	0.0%	0.0%	0.6%	4.2%	11.4%	25.9%	57.8%
TV news	0.0%	1.2%	6.0%	3.0%	4.2%	13.9%	71.7%
Reality shows	0.0%	0.0%	0.0%	4.8%	1.8%	3.6%	89.8%
Action movies	0.0%	0.0%	0.0%	0.6%	1.8%	4.8%	92.8%
Adult series	0.0%	0.0%	0.6%	1.8%	0.0%	2.4%	95.2%
Other	0.0%	0.6%	0.0%	0.6%	0.6%	1.8%	96.4%

Questions on videos and photographs were added later in the questionnaire; thus, only 123 parents responded. Nevertheless, data indicate that 60.8% of children occasionally watched videos and 65.8% photographs, though none did so daily.

Use of digital technology among children living in urban and rural environments

The fifth research question addressed differences in digital technology use between children living in urban and rural areas. Five participants living in suburban areas were excluded from the analysis. An independent-samples t-test was used to examine differences between children living in urban and rural areas, since the sample size was sufficiently large and the group sizes were approximately equal, supporting the robustness of the test to violations of normality. Results are shown in Table 5. Findings revealed no statistically significant difference in the use of digital technology between the two subsamples.

Table 5*Digital technology use by children from urban and rural living environments*

	<i>N</i>	<i>M</i>	<i>t</i>	<i>df</i>	<i>p</i>
Urban areas	82	45.91	.554	159	.58
Rural areas	79	42.91			

Discussion

First, we examined daily use of digital technology by preschool children in relation to age. The observed positive, moderately strong correlation between children's age and time spent using digital technology is consistent with previous findings that screen time increases with age (Cao et al., 2024). Average daily use of digital technology in this study was 15 minutes for one- to two-year-olds, approximately 30 minutes for two- to four-year-olds, and about 60 minutes for children older than four. The use of technology among the youngest children is problematic, given that the use for this age group is not recommended according to the Screen Time Guidelines for Children and Adolescents. Technology use among children aged 4 to 6 also slightly exceeded the recommended guidelines, which is a maximum of 1 hour for this age group (Vintar Spreitzer et al., 2021). Similar findings were reported by Kovačič et al. (2016), who observed an average daily use of 57 minutes among preschoolers in Nova Gorica. Rek et al. (2022) report longer screen times—83 minutes daily, or as much as 2 hours per day among children under three years old and around 3 hours per day among 4- to 6-year-olds. These discrepancies highlight the variability of findings. Average values do not imply that every child is exposed to digital technology to the same degree (Genc, 2014). Parents may also struggle to estimate screen time accurately, leading to reporting biases. Furthermore, our sample may have been skewed towards parents more aware of screen time limitations and thus more restrictive in their children's use, since participation in the study was voluntary. In addition, screen time represents a relatively simplistic but still commonly used (Wang et al., 2023) measure of digital engagement, capturing only one aspect of children's interaction with technology. Children may also be exposed to digital media indirectly, by being present during background media consumption or by observing their parents' technology use, since parents serve as important models for technology-related behaviour (Chapman and Pellicane, 2015; Rudnova et al., 2023; Wang et al., 2023; Wang et al., 2024).

Our findings confirm that entertainment is the primary purpose of use, though digital technology can also serve as a learning tool (Chaudron et al., 2018). More than half the children in our sample used it for educational purposes, and most also for maintaining distant social contacts, which supports a sense of security (Chapman and Pellicane, 2015). However, 34.3% of children used technology to fall asleep and 15.1% to calm down, despite recommendations in the Screen Time Guidelines for Children and Adolescents (Vintar Spreitzer et al., 2021) advising against such use. Using devices before sleep and for emotional regulation may signal problematic technology use in children (Coyne et al., 2021; Selak et al., 2025). It is important for parents to support self-regulation skills in children, without relying on screen-based media (Ponti, 2023).

Regarding the content of technology use, we found that preschool children most frequently watch cartoons, educational, and entertainment programmes for children. It is crucial that such content be developmentally appropriate and that parents watch it together with their children, thereby promoting holistic development (Gold, 2015; Li et al., 2020). The Slovenian Medical Chamber also recommends quality children's programming, such as *Živ žav* on the national television (Zdravniška zbornica Slovenije, n.d.-a). Joint viewing improves children's comprehension and the emotional experience of content (Vintar Spreitzer et al., 2021), particularly when the content is not primarily designed for children. It is concerning that some children (7.2%) watched action movies containing violent content, which might encourage aggressive behaviour, anger, and hostility, and in children under three years of age may overstimulate them and hinder the development of self-regulation (Li et al., 2020). Such content is inappropriate for preschool children, and parents should prevent their exposure to it. On a more positive note, 45.8% of children did not watch advertisements, possibly as a result of parental use of ad-free platforms or skipping ads. This is encouraging, since avoiding advertising content is recommended (Vintar Spreitzer et al., 2021).

Children living in urban and rural areas used digital technology to a similar extent, contrary to previous research reporting substantial differences in digital technology use between rural and urban children (Cao et al., 2024; Li and Liu, 2025; Xie et al., 2025). In developed countries, including Slovenia, about 90% of children have home internet access (Livingstone, Helsper and Rahali, 2022), which is a key factor in enabling technology use. It is also possible that parents without internet access did not complete our online survey, meaning we failed to capture data on their children.

It is important to note that findings presented in this research may have limited temporal validity due to the rapid advancement of technology and the specific post-pandemic context in which the data were collected. Another possible limitation is that some age groups of preschool children were more strongly represented than others, and the subsamples of specific ages were small, limiting the generalisability of the findings to the wider preschool population in Slovenia. In addition, the study relied on a self-report questionnaire, in which parents estimated their child's technology use. Such a method may reduce objectivity, since parents may have found it difficult to accurately estimate average screen time, which may affect the reliability of the data.

Conclusion

The study examined the extent, purpose, and content of digital technology use among preschool children, aiming to critically evaluate current patterns of early exposure. Findings showed that screen time increases with age, ranging from up to 15 minutes daily in children aged one to two, to around 60 minutes in older preschoolers. There were no significant differences in technology use between children living in urban and rural environments. Technology was primarily used for entertainment, followed by communication and educational purposes, while emotional regulation was least common. Children most frequently consumed cartoons and other entertainment or educational content. While many were not exposed to advertisements, the presence of violent content among some children's viewing raises concerns and underscores the need for greater parental awareness.

Future research could be strengthened by using larger samples and more systematic daily tracking of screen time (e.g., over a month). Since digital engagement extends beyond duration, and considering that outcomes of technology use in preschool children are more inconsistent when multiple aspects are considered (Harverson et al., 2025), a comprehensive perspective on technology use is particularly important. We addressed additional aspects (content and purpose), while future research could also focus on the context of use, which may serve as an important mediating factor between preschool children's digital use and developmental outcomes. To better understand the quality of screen time, it would be particularly valuable to investigate interactivity (e.g., how often parents engage in co-viewing with their children, and whether they discuss the viewed content together).

The topic of this study is highly relevant, as digital technology has become unavoidable. These findings will contribute to greater awareness among parents and preschool educators regarding the amount of screen time appropriate for children of different ages, the purposes for which digital devices may be used, and the types of content that are suitable. Guidelines for parents and professionals are available in the Screen Time Guidelines for Children and Adolescents (Vintar Spreitzer et al., 2021). Ultimately, it is essential to raise parental awareness of the importance of their role in guiding children's digital media use. Co-viewing and discussing content are key to fostering healthy development in the digital environment.

Data Availability Statement

The article is based on data fully presented and discussed within the article itself; therefore, no additional data archiving is required.

References

- Axelsson, E. L., Metse, A., Nanthakumar, S., Paech, G., Quinn, A. A., Purcell, K., Asis, A., and Robbins, I. (2026). Screen time and behaviour in preschool-aged children: Relationships with caregiver perceptions. *Australasian Journal of Early Childhood*, 51(1), 104–122. <https://doi.org/10.1177/18369391251376711>
- Bergmann, C., Dimitrova, N., Alaslani, K., Almohammadi, A., Alroqi, H., Aussems, S., Barokova, M., Davies, C., Gonzales-Gomez, N., Gibson, S. P., Havron, N., Horowitz-Kraus, T., Kanero, J., Kartushina, N., Keller, C., Mayor, J., Mundry, R., Shinsky, J., and Mani, N. (2022). Young children's screen time during the first COVID-19 lockdown in 12 countries. *Scientific Reports*, 12(1), 2015. <https://doi.org/10.1038/s41598-022-05840-5>
- Blažević, I., and Klein, N. (2022). Digital media and internet safety among primary school students during the COVID-19 pandemic. *Journal of Elementary Education*, 15(2), 127–144. <https://doi.org/10.18690/rei.15.2.127-144.2022>
- Cao, S., Dong, C., and Li, H. (2024). Emergent digital literacy in Chinese preschoolers: developmental patterns and associated predictors. *Early Child Development and Care*, 194(2), 281–295. <https://doi.org/10.1080/03004430.2024.2303480>
- Chapman, G., and Pellicane, A. (2015). *Družabno odraščanje: kako vzgojiti družabne otroke v svetu zaslonov* (1st ed.). Družina.
- Chaudron, S., Di Gioia, R., and Gemo, M. (2018). *Young Children (0-8) and Digital Technology: A qualitative study across Europe*. Publications Office of the European Union, Luxembourg. <https://doi.org/10.2760/294383>
- Clemente-Suárez, V. J., Beltrán-Velasco, A. I., Herrero-Roldán, S., Rodríguez-Besteiro, S., Martínez-Guardado, I., Martín-Rodríguez, A., and Tornero-Aguilera, J. F. (2024). Digital device usage and childhood cognitive development: Exploring effects on cognitive abilities. *Children*, 11(11), 1299. <https://doi.org/10.3390/children11111299>
- Coyne, S. M., Shawcroft, J., Gale, M., Gentile, D. A., Etherington, J. T., Holmgren, H., and Stockdale, L. (2021). Tantrums, toddlers and technology: Temperament, media emotion regulation, and problematic media use in early childhood. *Computers in Human Behavior*, 120, 106762. <https://doi.org/10.1016/j.chb.2021.106762>

- Dolenc, K., and Fošnarčič, S. (2025). From Digital Technology to Healthy Habits: Interdisciplinary Foundations for Developing Training Programs for a Healthy Lifestyle among Children. *Journal of Elementary Education*, 18 (Special Issue), 107–120. <https://doi.org/10.18690/rei-5399>
- Genc, Z. (2014). Parents' perceptions about the mobile technology use of preschool aged children. *Procedia - Social and Behavioral Sciences*, 146, 55–60. <https://doi.org/10.1016/j.sbspro.2014-08.086>
- Gold, J. (2015). *Vzgoja v digitalni dobi: priručnik za spodbujanje zdravega odnosa do tehnologije od rojstva do najstniških let* (1st ed.). Didakta.
- Harverson, J., Paatsch, L., Anglim, J., and Horwood, S. (2025). Digital technology use and well-being in young children: a systematic review and meta-analysis. *Computers in Human Behavior*, 168, 108660. <https://doi.org/10.1016/j.chb.2025.108660>
- Henderson, D., Bailes, T., Sturza, J., Robb, M. B., Radesky, J. S., and Munzer, T. G. (2024). Youtube for young children: what are infants and toddlers watching on the most popular video-sharing app? *Frontiers in Developmental Psychology*, 2, 1335922. <https://doi.org/10.3389/fdyps-2024.1335922>
- Hutton, J. S., Dudley, J., Horowitz-Kraus, T., DeWitt, T., and Holland, S. K. (2020). Associations between screen-based media use and brain white matter integrity in preschool-aged children. *JAMA Pediatrics*, 174 (1), e193869. <https://doi.org/10.1001/jamapediatrics.2019.3869>
- Jourdren, M., Bucaille, A., and Ropars, J. (2023). The impact of screen exposure on attention abilities in young children: a systematic review. *Pediatric Neurology*, 142, 76–88. <https://doi.org/10.1016/j.pediatrneurol.2023.01.005>
- Konca, A. S. (2022). Digital technology usage of young children: Screen time and families. *Early Childhood Education Journal*, 50(7), 1097–1108. <https://doi.org/10.1007/s10643-021-01245-7>
- Kovačič, A., and Zakrajšek, S. (2017). Uporaba zaslonov in medijska pismenost predšolskih otrok v vrtcih. *Pedagoška obzorja*, 32(2), 18–24. <http://www.dlib.si/?URN=URN:NBN:SI:doc-ZBBLILZG>
- Kovačič, A., Mavri, B., and Rek, M. (2016). Predšolski otroci in vpliv medijev. *Pedagoška obzorja*, 31(2), 20–35. <http://www.dlib.si/?URN=URN:NBN:SI:doc-UUICRF3G>
- Li, C., Cheng, G., Sha, T., Cheng, W., and Yan, Y. (2020). The Relationships between Screen Use and Health Indicators among Infants, Toddlers, and Preschoolers: A Meta-Analysis and Systematic Review. *International Journal of Environmental Research and Public Health*, 17(19): 7324. <https://doi.org/10.3390/ijerph17197324>
- Li, L., and Liu, M. (2025). Exploring parental attitudes, awareness and support for digital reading in preschoolers: A quantitative comparison of rural and urban contexts. *Journal of Chinese Writing Systems*, 9(3), 147–157. <https://doi.org/10.1177/25138502251374189>
- Liu, S., Reynolds, B. L., Thomas, N., and Soyoo, A. (2024). The use of digital technologies to develop young children's language and literacy skills: A systematic review. *Sage Open*, 14(1), 21582440241230850. <https://doi.org/10.1177/21582440241230850>
- Livingstone, S., Helsper, E., and Rahali, M. (2022). A new ITU publication on digital skills in the lives of children and young people. <https://blogs.lse.ac.uk/parenting4digitalfuture/2022/06-29/digital-skills-itu/>
- Ma, S., Li, J., and Chen, E. E. (2024). Does screen media hurt young children's social development? Longitudinal associations between parental engagement, children's screen time, and their social competence. *Early Education and Development*, 35(1), 10–25. <https://doi.org/10.1080/10409289.2022.2151401>
- Merín, L., Toledano-González, A., Fernández-Aguilar, L., Nieto, M., Del Olmo, N., and Latorre, J. M. (2024). Evaluation of the association between excessive screen use, sleep patterns and behavioral and cognitive aspects in preschool population. A systematic review. *European Child & Adolescent Psychiatry*, 33(12), 4097–4114. <https://doi.org/10.1007/s00787-024-02430-w>

- Mikelić Preradović, N., Lešin, G., and Šagud, M. (2016). Investigating Parents' Attitudes towards Digital Technology Use in Early Childhood: A Case Study from Croatia. *Informatics in Education*, 15(1), 127–146. <https://doi.org/10.15388/infedu.2016.07>
- Polajner, B. (2019). Vloga staršev pri preprečevanju digitalne zasvojenosti. *Vzgoja*, 21/1(81), 14–18. <http://www.dlib.si/?URN=URN:NBN:SI:DOC-R1SJLR1L>
- Ponti, M. (2023). Screen time and preschool children: Promoting health and development in a digital world. *Paediatrics & Child Health*, 28(3), 184–192. <https://doi.org/10.1093/pch/pxac125>
- Rek, M., Ljubotina, P., Mešič, S., and Bašin, A. (2022). *Mediji in predšolski otroci v Sloveniji*. Fakulteta za medije. https://pismenost.si/wp-content/uploads/2016/04/Mediji-in-pred%C5%A1olski-otroci-v-Sloveniji_20224.pdf
- Rudnova, N., Kornienko, D., Semenov, Y., and Egorov, V. (2023). Characteristics of parental digital mediation: Predictors, strategies, and differences among children experiencing various parental mediation strategies. *Education Sciences*, 13(1), 57. <https://doi.org/10.3390/educsci-13010057>
- Selak, Š., Horvat, J., and Žmavc, M. (2025). Problematic digital technology use measures in children aged 0 to 6 Years: Scoping review. *JMIR Mental Health*, 12(1), e59869. <https://doi.org/10.2196/59869>
- Summers, P. W., DeSollar-Hale, A., & Ibrahim-Leathers, H. (2013). *Toddlers on technology: A parents' guide*. AuthorHouse. <https://archive.org/details/toddlersontechno0000leat/page/n7/mode/2up?view=theater>
- Tokić, B., Brčić, M. K., and Miočić, M. (2025). A Comparative Study of Early Childhood Teachers' Digital Practices During and After COVID-19. *Journal of Elementary Education*, 18(3), 271–285. <https://doi.org/10.18690/rei.4951>
- Topić, P., Hočevar, A., and Merljak Zdovc, S. (9. 2. 2021). *Ali se dovolj zavedamo pasti interneta?* Oddaja Studio ob 17.00. RTV SLO. Radio prvi. <https://prvi.rtvlo.si/podkast/studio-ob-1700/87/174752525>
- Tulimirović, A. (2015). *Kako pripraviti otroka na digitalno dobo?* Svetovalni center za otroke, mladostnike in starše Maribor.
- Van den Heuvel, M., Ma, J., Borkhoff C. M., Koroshegyi, C., Dai, D. W. H., Parkin, P. C., Maguire, J. L., and Birken, C. S. (2019). Mobile media device use is associated with expressive language delay in 18-month-old children. *Journal of Developmental and Behavioral Pediatrics*, 40(2), 99–104. <https://doi.org/10.1097/DBP.0000000000000630>
- Vintar Spreitzer, M., Baš, D., Radšel, A., Anderluh, M., Vreča, M., Reš, Š., Selak, Š., Hudoklin, M., and Osredkar, D. (2021). *Smernice za uporabo zaslonov pri otrocih in mladostnikih: priručnik za strokovnjake*. https://www.zdravniskazbornica.si/docs/default-source/novice-dokumenti/uporaba-zaslonov_smernice_za-splet_strani-zaporedno_kon%C4%8Dna.pdf?sfvrsn=df-b8343-6_2
- Wan, M. W., Fitch-Bunce, C., Heron, K., and Lester, E. (2021). Infant screen media usage and social-emotional functioning. *Infant Behavior and Development*, 62, 101509. <https://doi.org/10.1016/j.infbeh.2020.101509>
- Wang, C., Qian, H., Li, H., and Wu, D. (2023). The status quo, contributors, consequences and models of digital overuse/problematic use in preschoolers: A scoping review. *Frontiers in Psychology*, 14, 1049102. <https://doi.org/10.3389/fpsyg.2023.1049102>
- Wang, H., Zhao, J., Yu, Z., Pan, H., Wu, S., Zhu, Q., Dong, Y., Liu, H., Zhang, Y., and Jiang, F. (2024). Types of on-screen content and mental health in kindergarten children. *JAMA Pediatrics*, 178(2), 125–132. <https://doi.org/10.1001/jamapediatrics.2023.5220>
- Weber, A. M., and Greiff, S. (2023). ICT skills in the deployment of 21st century skills: A (cognitive) developmental perspective through early childhood. *Applied Sciences*, 13(7), 4615. <https://doi.org/10.3390/app13074615>
- Xie, Q., Wang, T., Hu, Y., Wang, T., and Zhang, X. (2025). Literacy starts at home: Examining the interplay between parental involvement, socioeconomic factors, and preschoolers' cognitive development. *Information Development*, 02666669261419473. <https://doi.org/10.1177/02666669261419473>

Zdravniška zbornica Slovenije (n. d.-a). *Kvalitetne spletne vsebine po starosti*. <https://www.zdravniskazbornica.si/informacije-publikacije-in-analize/zaslони/kvalitetne-vsebine>

Zdravniška zbornica Slovenije (n. d.-b). *Preprečevanje kratkovidnosti*. <https://www.zdravniskazbornica.si/informacije-publikacije-in-analize/zaslони/prepre%C4%8Devanje-kratkovidnosti>.

Zoromba, M. A., Abdelgawad, D., Hashem, S., El-Gazar, H., and Abd El Aziz, M. A. (2023). Association between media exposure and behavioral problems among preschool children. *Frontiers in Psychology, 14*, 1080550. <https://doi.org/10.3389/fpsyg.2023.1080550>.

Authors:

Polona Gradišek, PhD

Assistant Professor, University of Ljubljana, Faculty of Education, Kardeljeva ploščad 16, 1000 Ljubljana, Slovenia, e-mail: polona.gradisek@pef.uni-lj.si
docentka, Univerza v Ljubljani, Pedagoška fakulteta, Kardeljeva ploščad 16, 1000 Ljubljana, Slovenija, e-pošta: polona.gradisek@pef.uni-lj.si

Polona Golob, bachelor's degree in early childhood education

Anton Medved Kindergarten, Kamnik, Novi trg 26b, 1241 Kamnik, Slovenia, e-mail: polona.golob11@gmail.com
dipl. vzgojiteljica predšolskih otrok, Vrtec Antona Medveda Kamnik, Novi trg 26b, 1241 Kamnik, Slovenija, e-pošta: polona.golob11@gmail.com