| Chapter 2 |

The Impact of Individual Online Platforms on Children's Psychological Development

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ABSTRACT

In the era of digitalisation, online platforms have become an integral part of the lives of children and young people, playing a key role in their educational, social, and emotional development. This study aims to describe the potential impact of online platforms on the development of young users while showing the benefits and potential risks associated with their use. On the positive side, access to a wide range of educational resources and opportunities for social interaction via the Internet can support learning and the development of communication skills. Simultaneously, attention has been drawn to challenges, such as the risk of addiction, cyberbullying, and sleep disorders, which may result from the excessive and uncontrolled use of digital technologies. This study also highlights the importance of the role of adults – parents, teachers, and legislators – in creating a safe digital environment that promotes healthy online habits. Digital education, establishing rules for using the Internet, promoting off-screen physical activities and hobbies, and developing critical thinking about Internet content are recommended. It is important that adults are aware of the potential risks and actively support young people in safely using the Internet while building trust and openness to dialogue about their online experiences. Although online platforms offer young users numerous development opportunities, a conscious and balanced approach to using them is required. By promoting healthy digital habits and actively engaging adults in the digital education process, we can ensure that the Internet becomes a safe and valuable tool that supports the comprehensive development of children and youth.

KEYWORDS

development of children and youth, online security, digital education, excessive use of the Internet, online platforms, healthy digital habits

1. Introduction

In the face of dynamic technological progress, modern children are growing up in a world where the boundaries between reality and the virtual environment are increasingly blurred. Online platforms such as social media, educational portals, gaming applications, and video services have become an integral part of their lives, playing

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a key role not only in learning and acquiring knowledge but also in building social relationships and forming identity. Young users, who use a wide range of available digital tools, have incomparably greater opportunities to explore the world, express themselves, and establish contacts with peers from different corners of the world.

However, along with the undoubted benefits of using online platforms, there are also risks and challenges that can have far-reaching effects on a child's developing mind. Problems such as excessive internet use, the risk of exposure to inappropriate content, cyberbullying, and the impact of social media on self-esteem and mental well-being are just some of the issues that raise concerns among parents, teachers, and specialists involved in protecting children's well-being. In the context of these challenges, it is crucial to understand how interactions in the virtual environment affect the psychological development of children and adolescents and how digital space can be shaped to make it safe and support healthy development.

According to classical psychological developmental theories, a well-developed young adult is characterised by cognitive maturity, emotional stability, and social competence. Following Jean Piaget's theory, such an individual has reached the stage of formal operational thinking, demonstrating abstract reasoning, hypothetical-deductive logic, and reflective judgment essential for independent decision-making and future planning[1]. Psychosocially, in Erik Erikson's framework, this stage reflects the successful resolution of identity formation, enabling the young adult to maintain a stable sense of self and personal values while navigating intimate and professional relationships[2]. From Lev Vygotsky's sociocultural perspective, the young adult engages in collaborative learning and interpersonal problem solving, recognising the role of culture and language in ongoing development[3]. Finally, Bowlby's attachment theory suggests that emotionally healthy young adults internalise secure attachment patterns, allowing emotional regulation, trust in relationships, and resilience in the face of stress[4]. Together, these dimensions may define normative psychological development as a holistic integration of thought, identity, and affective competence.

The aim of this work is to present current research on the benefits and risks of children and adolescents using various online platforms. Such an understanding is necessary not only to better adapt upbringing and educational practices to the realities of the digital world, but also to develop effective legal regulations that will protect young users against the potential negative effects of their online presence. Finally, the roles of parents, teachers, and legislators in building a safe online environment for children and young people were presented.

In this study, the age ranges most commonly used in the psychological and medical literature were used. However, it should be noted that these are approximate boundaries; the child's development is individual, and the transition between stages

1 Cerovac and Keane, 2025, p. 62.
2 Kesavelu, Sheela and Abraham, 2021, pp. 75–76.
3 Saracho, 2023, p. 20.
4 Baldwin, 2020, pp. 37–53.

is not always clear or simultaneous for all individuals. The table below lists the names used together with the corresponding age ranges, and a summary of the more important developmental characteristics of each period.

Table 1. Developmental stages from infancy to emerging adulthood. A summary of the major characteristics in specific areas: cognitive, emotional, and social[5]

Age group / developmental stage	Cognitive development	Emotional development	Social development
1–3 years (toddlerhood)	Rapid sensorimotor learning, emerging language skills	Basic emotion expression, early regulation skills	Attachment to caregivers, early imitation
3–5 years (preschool-aged)	Symbolic play, basic reasoning, vocabulary expansion	Understanding of basic emotions, beginning of self-concept	Peer interactions, cooperative play begins
6–8 years (early school-aged)	Foundational literacy and numeracy, attention, and memory growth	Greater emotional control, development of self-esteem	Friendships based on shared activities, rule-following
9–11 years (middle childhood)	Concrete logical thinking, improved academic skills	Awareness of complex emotions, emotional empathy	Peer group importance increases, teamwork skills
12–14 years (early adolescence)	Abstract thinking, metacognition begins	Identity exploration, emotional sensitivity	Desire for peer approval, exploration of social roles
15–17 years (middle adolescence)	Critical thinking, complex problem-solving	Increased self-awareness, mood fluctuations	Deepening relationships, interest in romantic partnerships
18+ years (late adolescence / emerging adulthood)	Autonomous decision-making, long-term planning	Emotional stability, self-acceptance	Formation of lasting relationships, social responsibility

2. Children and Adolescents on the Internet

When starting to analyse the impact of online platforms on children's development, let us start by looking at the -Internet use habits of young people. It is worth paying attention to the results of the research conducted as part of the EU Kids Online project[6], which covers 19 member states of the European Union. This study, which involved 25,101 people aged 9-17, provides valuable information and conclusions about the digital practices of young users.

This analysis reveals, without surprise, that the dominant device used for accessing the network among the surveyed group is a smartphone. In 11 countries - Croatia, the Czech Republic, Germany, Estonia, Italy, Lithuania, Norway, Poland, Portugal, Romania, and Serbia – the percentage of people aged 9-17 using mobile devices daily exceeds 80%. By contrast, laptops and desktop computers are used much less daily, with the lowest percentage of users (26%) in Switzerland and the highest (66%) in Lithuania. Mobile phones have a clear advantage over computers, with percentage

5 Source: Author's own elaboration.
6 Smahel et al., 2020, pp. 6–7.

differences ranging from 19% to 47%. In nine countries this difference exceeds 40%. Tablets, another device used to connect to the Internet, have varying degrees of popularity in everyday use, from 14% in Poland to 43% in Malta, with less than 25% using them daily in most European Union countries. In some countries, smart TV is more popular than tablets. Spain is at the forefront here, with almost 75% connecting to the Internet every day via TV. Italy is at the other extreme: only 17% use this method of accessing the Internet. Game consoles also vary in terms of daily use, ranging from 5% in Slovakia to 34% in Malta.

In summary, despite differences between countries in terms of preferred devices for Internet access, a significant proportion of young users use these devices daily. These results highlight the significant role digital devices play in the everyday lives of children and young people, constituting an essential element of their social interactions and access to information. The estimated daily time spent by children in the digital world ranges from 134 to 219 minutes in Switzerland and Norway, respectively. The report provides a lot of detailed information; however, here, let us take a closer look at the issue of differences between the sexes and between younger children and teenagers in the use of the most popular means, i.e., the smartphone.

The extent of children's daily Internet use on smartphones ranges from 35% to 68% in the case of boys and from 42% to 75% in the case of girls. In countries such as Estonia, France, Malta, Norway, Poland, Portugal, Serbia, and Slovakia, girls are slightly more likely than boys to use the Internet on smartphones several times a day, with the percentage difference ranging from six points (Estonia) to eleven points (Malta). Although these differences are relatively small, they indicate that in most countries, both boys and girls use smartphones at similar levels.

Age differences are more pronounced. In each of the countries surveyed, older children are more likely than younger children to use the Internet on smartphones daily. There is a clear gap between the youngest and oldest age groups, with the average difference being forty-six percentage points. In the youngest age group (9–11 years), the percentage of children using the Internet on smartphones daily ranges from 14% in France to 56% in Lithuania. However, in most countries, less than one-third of children in this age group use the Internet on a smartphone several times a day. For the 12-14 age group, the range of intensive use of the Internet on a smartphone range from 42% (Slovakia) to 84% (Norway). However, in the 15-16 age group, frequent use of the Internet on smartphones is much more common, with percentages ranging from 56% in Slovakia to 93% in Norway. In Switzerland and Spain, the difference between the youngest and oldest age groups is noticeable, reaching 69 and 62 percentage points, respectively. In contrast, in Lithuania, Croatia, and Slovakia, the difference is thirty-five percentage points or less, highlighting that older children are much more likely to use the internet on smartphones than younger children.

Now that we have an idea of how children gain access to the Internet, we must answer the question of what they do on-line. The activities that the authors of the project looked at were watching video clips, listening to music, communicating with family or friends, visiting a social networking, playing online games, using the

Internet for school purposes, browsing for things to buy, or checking their price, and searching for news. The extent of children's online activity shows significant differences between countries. Watching movies online ranges between 43% and 82%, with the lowest percentage in Slovakia and the highest in Lithuania. Similarly, the percentage of children listening to music on the Internet ranges from 45% in Germany to 81% in Serbia. Using the internet to communicate with friends and family shows an even wider range - from 14% in Germany to 77% in Romania, while visiting social networking sites ranges from 38% in Spain to 73% in Serbia. Online games enjoy varying levels of interest, from 27% of children playing them every day in Slovakia to 71% in Lithuania. Internet use for educational purposes also varies, with percentages ranging from 16% in Poland to 46% in Lithuania. In contrast, online shopping or browsing the Internet to check product prices is less popular, with the lowest percentage in Germany (8%) and the highest in Romania (41%). Finally, Internet use for reading or watching news ranges from 9% in Germany to 39% in Lithuania, showing that young Internet users engage in a wide range of digital activities with varying degrees of frequency depending on the country.

These data provide an overall picture of the digital engagement of children and young people. It should be noted that these data are from before the COVID-19 pandemic and before the restrictions introduced in many countries forced greater activity in the digital world. Many studies have demonstrated lifestyle changes and a significant increase in the online presence of children and adolescents during the pandemic[7]. However, we must wait for the results of systemic analyses to determine the durability of these changes after the end of the pandemic. However, we can confidently assume that the activity of children and young people on the Internet will not be lower than before the pandemic.

Which applications and online services do children use most often? There is a lack of analyses that collect such data from EU countries in one place. As the authors of the EU Kids Online project[8] also point out, it is not always possible to obtain such data, and they may be incomplete. For example, popular applications are publicly available, and unless the user is logged in, it is impossible to say anything about them. Another problem is the issue of verifying the age of users; in many cases, this is limited only to the user's declaration that he is over 18 years of age or that he has his legal guardians' consent to use the website. Another problem is the issue of limiting some platforms to users over a certain age, for example, 13 years. Therefore, younger people theoretically have no right to use them, but verifying this is not always effective. Despite these limitations, some countries conduct research on the use of specific applications by children and adolescents. For example, Qustodio Technologies S.L. publishes annual reports on children and adolescents spending time on phones. The 2022 report[9], based

7 Ie. Bates et al., 2020, p. 7; Xiang, Zhang and Kuwahara, 2020, p. 531; Rossi, Behme and Breuer, 2021, pp. 6–8; Singh and Balhara, 2021, p. 194; Vejmelka and Matković, 2021, pp. 11–15; Kamaşak et al., 2022, pp. 197–203.

8 Smahel et al., 2020, pp. 16–17.

9 Qustodio Technologies, 2023, p. 37.

on data from over 400,000 young users from the UK, US, Australia, and Spain, shows that children spend an average of four hours a day in front of personal device screens outside of school. On average, they spent most of their time playing Roblox, approximately three hours a day. They spend an average of 1 hour and 47 minutes watching short videos on TikTok and 1 hour and 07 minutes watching longer videos on YouTube, respectively. The Snapchat application is popular among Australian children and is used for an average of 1 hour and 14 minutes a day. For comparison, Spanish children spend 29 minutes a day outside of school on Smartick, a vocabulary and math learning app. Of course, the use of individual applications will vary among EU countries, and comparisons will often be difficult. Therefore, in the following section, we will focus not on individual websites but on the reasons why children and young people use them, as described in the first part of this subchapter.

3. Positive Impacts of Online Platforms

A review of the available scientific research on the impact of online platforms on the development of children and adolescents shows that scientists more often focus on the negative aspects of young people's Internet use. Another important observation is that analyses often separate the impacts of online games, learning platforms, and social media on younger users' psyches[10]. The same applies to research devoted to the positive aspects of the development of children and adolescents. The scientific literature most often distinguishes between three primary areas in which positive effects are observed: cognitive[11], psychosocial[12], and emotional development[13], with the most positive changes observed in the cognitive area concerning knowledge and skills.

Research on cognitive development mainly concerns learning, memory, decision making, and logical thinking. The authors of the research indicate that the use of various applications for learning increases the efficiency and speed of acquiring new knowledge or learning a foreign language. Developing decision-making and logical thinking competencies is most often associated with playing online games. For example, a study by Agne Suziedelyte[14] found that playing video games had a positive effect on children's problem-solving skills, while showing no significant impact on their reading skills. In turn, the work of Rusyaizil Ramla and Kristo Radion Purba[15] focuses on the development of a game designed for Cognitive Therapy (CRT) aimed at improving attention span, memory, and problem-solving skills in children with learning disabilities. Nevertheless, other researchers believe that although the data indicate a certain development of cognitive processes under the influence of online

10 Underwood, George and Burnell, 2023, pp. 311–313.
11 Ramli and Purba, 2023, pp. 1–3.
12 Ross et al., 2021, pp. 299–300.
13 David, Predatu and Cardoș, 2018, pp. 57–60.
14 Suziedelyte, 2012, pp. 35–37.
15 Ramli and Purba, 2023, pp. 1–3.

platforms, this cannot be said unambiguously; more research is needed, especially experimental research, thanks to which it will be possible to clearly confirm the cause-and-effect relationship[16]. In addition, the use of various social media platforms can help children gain knowledge and education. Social media can serve as a source of knowledge and inspiration in many areas, offering young people access to educational materials, guides, and content that can expand their horizons and support the development of their interests and skills.

Some researchers[17] highlight the positive impact of online platforms in the context of psychosocial development. Considering that communication between peers is increasingly moving to the Internet, it is not surprising that this aspect is gaining importance. Children and adolescents who have difficulty communicating in the real world (e.g., due to shyness or lack of skills) can acquire certain communication competences in the virtual world. They can also strengthen their self-esteem or self-confidence online, which may make it easier for them to function in life. Some authors suggest that online games can have a positive impact on users' socio-emotional development while highlighting the need for further research to delve deeper into these relationships. Therefore, the key in the educational context is the balanced use of online games, which considers the potential benefits and risks associated with their abuse or inappropriate use. Many online games promote cooperation and teamwork to achieve goals, which can help develop skills such as negotiation, communication and interpersonal interaction that are essential in everyday life. As a result, children learn effective cooperation, task division, and conflict resolution within a group. Online games also provide opportunities to build and maintain relationships. Through interactions in games, chats, and forums, young people can contact peers with similar interests from around the world, supporting the development of empathy, understanding cultural diversity, and creating lasting social bonds. Multiplayer games often require players to communicate and coordinate effectively, which helps them develop the ability to express their thoughts and needs clearly. Children learn to convey information, listen actively, and use specific game language and symbols to cooperate. Games can also support emotional development by allowing players to identify with the characters and share their experiences. This experience can lead to a better understanding of others' emotions, developing empathy, and the ability to feel and express their own emotions. In addition, the development of communication skills and building relationships can be supported using social media. They enable children and young people to easily communicate with their peers, which can support the building and maintenance of social relationships. For some young people, especially those who are shy or have difficulty making connections in the real world, social media can be a valuable tool for expressing themselves and

16 Mills, 2016, pp. 9–10.
17 Suziedelyte, 2012, pp. 35–37.

making friends. They also make it easier to find people with similar interests, which can encourage social interactions[18].

When we look at the last area, i.e., emotional, researchers basically focus their attention on the supporting role of online platforms in cases of smaller or larger developmental deficits or situational difficulties[19]. It is worth noting that online interventions, such as group sessions with psychological and physical elements, can effectively reduce symptoms of anxiety and depression among children and adolescents, which was particularly evident during the COVID-19 pandemic[20]. Another important aspect is support for children with developmental disorders. Online platforms can offer psychosocial services that support the emotional and behavioural well-being of homeschooled children, which are extremely important for, for example, people with autism[21].

Table 2. A summary of the potential positive aspects of using online platforms[22]

Age group / developmental stage	Cognitive	Emotional	Social
1–3 years (toddlerhood)	Simple sensory-motor apps support attention and hand-eye coordination.	Personalized videos provide comfort and routine.	Co-viewing with parents supports bonding.
3–5 years (preschool-aged)	Educational games teach letters, colours, shapes, and counting.	Apps teach emotion recognition and regulation.	Interactive platforms introduce collaboration.
6–8 years (early school-aged)	Logic and language games enhance reasoning and literacy skills.	Creative expression through digital art and stories.	Controlled platforms teach empathy and communication.
9–11 years (middle childhood)	Search tools and strategy games develop information processing.	Achievement systems support motivation and self-esteem.	Team games and chats improve peer interactions.
12–14 years (early adolescence)	Tools for self-directed learning and project work.	Exploration of identity and interests via social media.	Peer bonding and online support networks.
15–17 years (middle adolescence)	Growth of critical thinking and content creation skills.	Emotional awareness via expressive media (photography, writing).	Online civic engagement and youth participation.
18+ years (late adolescence / emerging adulthood)	Use of digital tools for academic and professional development.	Use of mindfulness and self-help platforms.	Building professional networks and collaboration skills.

4. Negative Impacts of Online Platforms

Researchers pay much more attention to the negative consequences of using online platforms. What could be causing these problems? To simplify, on the one hand, extremely progressive technological development and a lack of equally rapidly

18 Underwood, George and Burnell, 2023, pp. 309–312.
19 Bates, Greene and O'Quinn, 2021, pp. 443–447; Nasith, Bashith, 2023, pp. 699–700.
20 Wendel et al., 2023, pp. 3720–3723.
21 Nasith and Bashith, 2023, pp. 699–700.
22 Source: Author's own elaboration.

developing regulations. On the other hand, there is a lack of sufficient digital education among both children and their parents. Children are often unaware of the consequences of their actions online, and parents may not understand how to protect their children from threats that await them. The impact of online platforms on children's development is a multidimensional phenomenon that includes psychological, social, and physical effects.

Psychological problems and related negative phenomena are more widely described in the literature than positive ones[23]. Long-term Internet use can lead to cognitive problems, such as shortened attention spans in children, where instant gratification and the dynamic nature of digital content make it difficult or even impossible to engage in longer offline tasks or activities. Emerging research indicates that dopamine plays a significant role in the maladaptive use of online platforms by reinforcing repetitive engagement through reward-related neurobiological pathways. Like substance-based addictions, platforms such as social media and video-sharing sites activate dopaminergic circuits associated with gratification, especially in response to likes, notifications, and novel content stimuli[24]. Chronic overstimulation of these pathways may lead to neuroplastic changes, including reduced dopamine receptor sensitivity, thereby increasing compulsive behaviours and tolerance[25]. Behavioural addiction models emphasise the formation of feedback-driven habit loops, with dopamine acting as the key neurochemical mediator, even in the absence of physical withdrawal symptoms[26]. Digital environments may also be intentionally designed to maximise user retention through dopaminergic feedback mechanisms, leading to sustained and often unconscious reengagement[27].

Moreover, regular exposure to online content can be a source of emotional disorders such as anxiety, depression, and low self-esteem, especially when young users compare themselves with idealised images from social media. Online platforms, particularly games and social media, can lead to compulsive use or addiction, whereby a child becomes overly dependent on these tools. Internet overuse can also interfere with homework and academic performance by eating up educational time or distracting students from academic activities. Additionally, long-term exposure to a variety of online content that may conflict with family values can affect a child's understanding of the concepts of right and wrong, creating confusion regarding morality. Children may also not be fully aware of privacy risks or dangerous online situations, which makes them vulnerable to cyberbullying and exposure to inappropriate content. Problems in the social area include limited development of social skills, making it difficult for children to interact face-to-face and understand nonverbal signals. This can lead to social isolation. Another problem can be caused by exposure to violent or inappropriate content. This may increase aggression (e.g., cyberbullying) or other

23 I.e. Kuss et al., 2014, pp. 4026–4052; Stoilova, Livingstone and Khazbak, 2021, pp. 12–13.
24 Macit, Macit and Güngör, 2018, p. 894.
25 Dresp-Langley and Hutt, 2022, p. 12.
26 Poisson, Engel and Saunders, 2021, pp. 3–9.
27 Eskandar, 2025, p. 18.

behavioural problems. In terms of negative effects on physical health, too much Internet use can cause eye strain, postural problems, sleep disturbances and an increased risk of obesity.

It should be noted that these problems often coexist. They rarely occur in isolation. For example, a person addicted to the Internet may experience social isolation as well as negative effects on physical health. Let us take a closer look at some of the most common problems: addiction, exposure to inappropriate content (including cyberbullying), social isolation, and sleep rhythm disturbances. Each of these phenomena can be attributed to a separate monograph, owing to their level of complexity. Therefore, we can provide only summaries here.

It is truistic to say that young people use the Internet and online platforms very often. Eurostat[28] data shows that, on average, 96% of young people in EU countries use the Internet daily. Does this mean that this percentage of people are addicted? Not necessarily. Internet addiction, also known as pathological Internet use or Internet use disorder, is defined as excessive or uncontrolled Internet use that negatively affects the user's daily life. Although not officially recognised as a diagnosable mental disorder by major diagnostic classifications such as DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, 5th Edition)[29] and ICD-11 (International Classification of Diseases, 11th Revision) [30], it is nonetheless the subject of much research. Internet addiction may also include specific behaviours such as addiction to computer games, social media, use of dating sites, obsessive information tracking, or excessive online shopping. Internet addiction can be characterised by several basic features: spending too much time on the Internet (a person spends significantly more time online than necessary, often at the expense of important life activities, such as work, study, interpersonal relationships, or free time); increasing need to use the Internet (a person must spend more time online to achieve the desired feeling of satisfaction or stimulation); repeatedly unsuccessful attempts to control, limit, or stop using the Internet (the person makes repeated unsuccessful attempts to reduce the time spent in front of the screen or control the types of online activities); anxiety and nervousness when trying to limit Internet access (the person feels dysphoric, anxious, irritable, or nervous when trying to limit Internet use); neglect of other areas of life (excessive use of the Internet leads to the neglect of professional, educational, social, or parental duties); continuing excessive Internet use despite being aware of its negative consequences (this includes relationship problems, professional problems, and deteriorating physical and mental health); using the Internet to deal with negative emotions (a person may use the Internet to avoid personal problems or relieve mood states such as depression or anxiety).

28 Eurostat, 2024.

29 American Psychiatric Association, 2013. In DSM 5 Internet Gaming Disorder (IGD) is included in the III section. This means there should be more clinical research and experience, before IGD can be considered for as a formal disorder.

30 WHO, 2019a. In ICD-11 we have only code "6C51.0 Gaming disorder, predominantly online" and code "6C5Z Disorders due to addictive behaviours, unspecified".

As the Internet is ubiquitous and plays a significant role in everyday life, the diagnosis and treatment of Internet addiction can be quite complex and requires an individualistic approach.

Another frequent problem is the exposure to inappropriate content. The current digital landscape has radically changed the way children and young people experience the world. The Internet offers a huge reservoir of knowledge, educational tools, and social opportunities, but the same resources that can enrich, unfortunately carry serious risks related to the exposure of young users to inappropriate and even harmful content, from cyberbullying and pornography to content that promotes extreme behaviour or dangerous challenges. Children at an early age, not realising the consequences, share their personal data or photos on the Internet. Such behaviour may lead not only to immediate threats in the form of cyberbullying but also result in long-term problems such as identity theft or stalking.

Cyberbullying is a phenomenon most often defined as any behaviour by individuals or groups via electronic or digital media that repeatedly transmits hostile or aggressive messages intended to cause harm or discomfort to others[31]. Researchers also study the phenomenon of cybervictimization, which they define as exposing a person or group to harmful behaviour via information and communication technologies. Thus, a cyberbully is a person who abuses victims using technology, while a cybervictim is described as a person harmed by cyberbullying[32]. This distinction allows research to focus on the victim (what are the negative consequences of experiencing violence, and are there any variables/features that make it easier to become a victim?), the perpetrator (who and what is the perpetrator of violence? Why does he use violence? What negative consequences does he suffer from due to the use of violence?), or both sides of the violent phenomenon. Violent behaviour online includes, for example, hacking, sharing obscene photos (which, in the case of children and minors, is punishable by law in many countries), bullying, and stalking/trespassing. Research findings suggest that cyberbullying victimisation is strongly associated with psychological distress in most adolescents[33]. Unfortunately, individual studies can only provide limited answers about who the victim/perpetrator of violence is and why it occurs; most often, it depends on specific research conducted in a specific environment and culture and considering a specific range of violent behaviours. Meta-analyses show certain trends, but most often, the effects are very low. However, one theme that often appears in the research is the role of support and communication with parents in overcoming the negative effects of violence.

The negative effects of experiencing violence, most often mentioned in the literature, may range from serious mental health problems such as anxiety, depression, or post-traumatic stress, to emotional disorders including feelings of fear, anger,

31 Farrington et al., 2023, pp. 9–10.
32 Akarsu, Budak and Okanlı, 2022, pp. 184–186.
33 Akarsu, Budak and Okanlı, 2022, pp. 184–186; Farrington et al., 2023, pp. 9–10; Griffith, Tetzlaff-Bemiller and Hunter, 2023, p. 7.

sadness, as well as a sense of powerlessness and isolation. Additionally, victims of cyberbullying often struggle with sleep disorders, including insomnia and nightmares, which negatively affects their overall health. Online bullying can also make it difficult to concentrate and learn, negatively affecting school performance and students' ability to focus on learning tasks. In extreme cases, people experiencing cyberbullying may engage in self-destructive behaviours, including suicidal thoughts or self-harm, as a way of coping with the emotional pain. Some victims may develop eating disorders that serve as unhealthy coping mechanisms for stress and negative emotions. Cyberbullying can also make it difficult to form and maintain healthy social relationships, both online and in the real world, due to the traumatic experience. Furthermore, the digital nature of this phenomenon allows for the easy review and dissemination of harmful content, which can lead to ongoing traumatisation of the victim. Consequently, the quality of life of people experiencing cyberbullying can decrease significantly, thereby affecting their daily functioning, sense of security, and overall well-being. Additionally, victims of cyberbullying may encounter difficulties asserting their rights in the digital environment, which may result in a sense of injustice and frustration. Therefore, it is crucial to take preventive actions, including education and building awareness about the seriousness and consequences of cyberbullying as well as developing effective support tools for people who fall victim to cyberbullying.

Social isolation is another negative and dangerous phenomenon that may occur in young people because of Internet use. Generally, social isolation refers to a lack of relationships, little or no social support from others, or a lack of interpersonal contacts[34]. However, this phenomenon may (but does not have to!) be related to loneliness (some researchers distinguish loneliness from the feeling of loneliness). It is an emotional state characterised by feelings of isolation or a lack of connection with other people. It is expressed through a lack of meaningful, close relationships, or a sense of belonging to a group. It is a disproportion between the current state of a person's social relations and the person's aspirations in this area. This may indicate that even an individual surrounded by many friends may experience loneliness. In the case of children and adolescents, among the sources of social isolation caused using online platforms, researchers most often mention excessive exposure to digital media[35], preferences for virtual interactions or their substitution with real ones[36], and the already mentioned online violence. Children and adolescents staying socially isolated may lead to many negative consequences on their mental and emotional health, social development, as well as physical health. Long-term social isolation is associated with a higher risk of developing depression, anxiety, and even personality disorders. Isolated people often experience deep states of sadness, hopelessness, and a lack of support, which may lead these disorders worsening. The feeling of loneliness, which is the subjective

34 CDC, 2024.
35 Tomoniko, 2019, pp. 4–9.
36 Anthony et al., 2023, pp. 7–9; Karapetyan and Gardner, 2023, pp. 76–78.

feeling of a lack of desired forms of social contact, also increases. This may lead to a negative impact on well-being and quality of life. Social isolation can lead to lower self-esteem because children and adolescents may interpret the reason for isolation as their own failures or lack of social acceptance. In terms of social effects, a lack of regular interaction with others can lead to a gradual weakening of social skills, such as communication, empathy, and conflict resolution. Isolation may building and maintaining close relationships difficult, which may lead to further withdrawal from social life.

The last area we will highlight here is the changes in sleep. The role of rest in physical and mental health is now obvious[37]. Simultaneously, the role of sleep in the proper mental development of children and adolescents is clear[38]. Many studies demonstrate that the length of sleep or its quality decreases in children and adolescents who spend time online[39]. Therefore, incorrect use of online platforms by children and adolescents may lead to sleep disorders, which may negatively affect their mental and physical development. Poor sleep quality can lead to mental health problems such as depression, anxiety, and an increased risk of mood disorders. Sleep deficiency affects emotion regulation, which may worsen mental well-being and increase susceptibility to stress. Sleep disorders can negatively affect cognitive functions such as concentration, memory, and learning ability. Children and adolescents who suffer from sleep deprivation may have difficulty maintaining attention in school, which affects their academic performance and educational achievements. Sleep deprivation can lead to behavioural problems including impulsivity, aggression, and emotional control problems. Children and young people may have difficulty dealing with frustration and may be more likely to display negative behaviours. Sleep disorders can also affect physical health, increasing the risk of obesity, type 2 diabetes, and cardiac problems. Sleep deprivation affects the hormones that regulate appetite, which can lead to unhealthy eating habits and weight gain. Excessive use of online platforms can lead to the above-mentioned addiction to the Internet or games, which, in turn, can worsen sleep problems. This means that sleep disorders may both be a cause and a result of excessive use of digital media. Sleep disorders can affect social and familial relationships. Children and adolescents with sleep problems may be more irritable and less likely to participate in family and social activities. Fatigue resulting from sleep disturbances can increase the risk of accidents and injuries, both in and outside of school.

In conclusion, we must emphasise once again that the use of online platforms by children and adolescents may bring them benefits but may also be dangerous to their development. However, it is difficult to consider these issues separately because the processes that occur when using the Internet are complex and interconnected.

37 Muzni et al., 2021, pp. 10–12.
38 Lustig, Cote and Willoughby, 2021, pp. 6–9; Dutil et al., 2022, pp. 165–166.
39 Restrepo et al., 2020, pp. 6–8; Kokka et al., 2021, pp. 8–12; Ahmed et al., 2022 pp. 7–9; Gundogdu and Eroglu, 2022, pp. 690–692.

Negative effects may be both the cause and the effect of other unfavourable phenomena. Additionally, negative processes may go hand in hand with the benefits for children in other areas. The lines are incredibly thin; therefore, it is important to have a full picture of what is happening to your child when using online platforms.

Finally, it should be noted that an increasing number of studies indicate the negative consequences on mental health of using digital platforms too early in life. International guidelines consistently recommend limited and developmentally appropriate exposure to digital media in early childhood. According to the World Health Organization[40], screen time should be carefully regulated during early childhood to support optimal health and development. For infants under the age of one year, screen time is not recommended. One-year-old children should also avoid all screen exposure, while two-year-olds may be introduced to limited screen use not exceeding one hour per day, with shorter durations being preferred. For preschool-aged children between three and four years of age, screen time should be restricted to no more than one hour daily. Similarly, the American Academy of Paediatrics (AAP) recommends avoiding media use for children younger than 18 months (except for video chatting); introducing only supervised, high-quality content for toddlers aged 18–24 months; and limiting screen time to one hour per day for children aged 2–5 years[41]. The AAP emphasises the importance of consistent boundaries and media literacy education for school-aged children and adolescents. UNICEF focuses on ensuring that digital environments are age appropriate, inclusive, and safe, particularly regarding children's rights to privacy, protection, and equitable access[42].

Studies highlight that early and excessive exposure to digital media in toddlerhood and preschool children may be a significant risk factor for the development of mental and behavioural disorders. Today, infants are exposed to screens as early as four months of age, and this early screen use has been linked to sleep disturbances and an increased risk of obesity, both of which are associated with emotional and cognitive regulation problems[43]. Children with neurodevelopmental conditions such as autism spectrum disorder (ASD) appear particularly vulnerable to the overstimulation caused by digital environments, which can intensify the symptoms of social withdrawal and sensory overload[44]. Cohort data from 12-month-olds also suggest that early screen exposure predicts longer screen times and possible behavioural problems in later childhood[45]. Moreover, expert consensus highlights the association between high screen use and an increased risk of anxiety, depression, attention difficulties, and low self-esteem in young users[46].

40 WHO, 2019b, pp. 8–10.
41 Council on Communications and Media et al, 2016, p. 3.
42 WHO and UNICEF, 2022, p. 18.
43 Wolf et al., 2018, p. 4
44 Krishnan et al., 2021, p. 798.
45 Durham et al., 2021, pp. 7–8.
46 Anitha et al., 2021, pp. 269–279.

Table 3. A summary of the potential negative aspects of using online platforms[47]

Age group / developmental stage	Cognitive	Emotional	Social
1–3 years (toddlerhood)	Delayed speech and attention from excessive screen time.	Sensory overload, irritability, dysregulation.	Limited caregiver interaction harms bonding.
3–5 years (preschool-aged)	Impaired problem-solving; reduced concentration.	Unrealistic emotional modelling by characters.	Poor sharing/cooperation if lacking offline play.
6–8 years (early school-aged)	Replacing active learning with passive content consumption.	Addiction to digital rewards (points, levels).	Isolation from real peers; facial cue misreading.
9–11 years (middle childhood)	Overstimulation hinders planning and retention.	Increased impulsivity and emotional reactivity.	Online-only relations may reduce empathy.
12–14 years (early adolescence)	Multitasking reduces academic performance.	Social comparison harms self-esteem and increases anxiety.	Cyberbullying and online peer rejection.
15–17 years (middle adolescence)	Difficulty focusing; information overload.	Increased risk of depression and anxiety.	Shallow relationships; face-to-face conflict avoidance.
18+ years (late adolescence / emerging adulthood)	Procrastination and reduced study/work motivation.	Dependency on digital coping mechanisms.	Weak offline relationship-building skills.

5. Implications for Parents, Educators, and Policymakers

It is an undeniable fact that the digital world is constantly evolving. Every few years, a significant step is taken in technological development, either at the level of hardware and access to it (constantly improving devices are available to an increasing percentage of the population) or software (development of the capabilities of various applications, the emergence of new ones, and the development of AI). Technology surrounds us and there is no sign that we will use it less. In contrast, the digital world makes our lives easier, supports work, and provides entertainment. We can expect future generations to use technology more often than earlier generations.

As stated previously, the issue of the impact of online platforms on the development of children and adolescents is multidimensional. It can bring a lot of good but also a lot of bad. Researchers show that regardless of whether we are parents, teachers, or professionals, we need to broadly understand education and the development of digital competence. We need knowledge of the current capabilities of various applications and tools on the Internet as well as the threats that lurk on the Internet. This knowledge must be constantly updated, because the digital world is changing rapidly. This is the first step toward ensuring the safe development of children and adolescents. The next steps will depend on the role we play.

Research shows the significant role of parents in counteracting or coping with the various negative consequences of dangerous phenomena. The most critical issue (although, in practice, it is often exceedingly difficult) is healthy communication. It is

47 Source: Author's own elaboration.

essential that parents talk to their children about their online experiences and that both parties communicate their concerns and feelings. Children should be encouraged to communicate honestly regarding what they find online. This helps build trust and openness in discussing potential problems. Simultaneously, this should be accompanied by setting boundaries. Parents should feel free to limit their children's screen time, especially before bedtime. Parents in cooperation with children, setting rules regarding the use of electronic devices, such as turning them off an hour before bed to support natural sleep patterns, is wise tactic. Content monitoring is an important aspect. Parents should be aware of the content that their children view or interact with online. Educational and constructive content that support cognitive and emotional development are worth promoting. Parents should be careful not to overcontrol their children as excessive control may have the opposite effect[48]. Parents could encourage physical activity and support a healthy lifestyle. Regular physical activity and a suitable diet can improve sleep quality, reduce stress, and positively affect the psychophysical development of children and adolescents. Parents, particularly of younger children, have a decisive influence on digital education. Therefore, it is not only from them that the learning habits of using the Internet begins, but also the ability to manage time online, recognise and avoid cyberbullying, and protect privacy. It is also worth building good relationships between children and other young people by spending time together. Shared off-screen activities (board games, reading books, or outdoor activities) can not only strengthen family bonds and enable children to take a break from technology, but also build trust and space for healthy communication. It should also be noted that children, especially at the beginning of their development, learn everything from their parents (even if the parents are not aware of everything). Therefore, parents should consider how tthey use these online platforms. For example, should they not limit their own time spent on electronic devices, especially around children? Parents should develop healthy technology usage habits that can be passed on to their children.

Teachers, whether in kindergartens or schools, may also play a key role in supporting the healthy development of children and young people using online platforms. This is even more so when, in the education process, they increasingly use various applications for support and even conduct the entire remote education. Using technology in an educational manner can show students how to use online platforms for learning and development. These may include the use of educational applications, online collaboration tools, and digital resources to support the learning process. The primary areas that teachers can support are digital education and online safety. Teachers can incorporate lessons on staying safe online into their curricula, including topics such as data privacy, cyberbullying, and critical thinking about the information they find. Education in these areas will help students understand the risks associated with using the Internet and how to avoid them. Developing critical thinking can help address this issue. Teaching students how to evaluate information

48 Nguyen et al., 2022, pp. 7–9.

they find online is crucial in the age of fake news and disinformation. They should learn to verify sources, understand the differences between opinions and facts, and critically analyse digital content. Teachers should not forget to provide emotional and psychological support to those who experience negative effects of Internet use. Creating an atmosphere of openness in classrooms, where everyone can share their experiences and seek help, is important. Another area that teachers can help with is the development of soft skills such as communication, teamwork, and time management through group projects and tasks that require the use of technology. This will help students make better use of technology in their daily and professional lives. Educators can promote healthy digital habits, including a balance between online and offline lives. For example, they may demonstrate a need to take regular breaks from the screen, limit notifications, and use devices in a conscious and purposeful manner. At the same time, teachers should not forget about real life; they can encourage students to spend time offline, for example, practising sports, art, or developing their interests. Finally, it is important to remember that teachers cannot replace parents and should collaborate with them to promote healthy Internet habits at home. This may include organising information events and workshops, and providing educational materials to help parents understand how to support their children's healthy digital development.

Decision makers who shape the law also play a role in shaping the online environment for the safe development of children and youth[49]. Policymakers can take several actions in this regard. The basic issue is support for research and development. This will facilitate diagnosing problem areas and planning and taking effective actions to support the safety and well-being of young Internet users. On the one hand, these activities may have an investment nature, supporting the creation of new, safe technologies. On the other hand, they may play a preventive and legislative role by creating and updating regulations aimed at counteracting cyberbullying, protecting personal data, and limiting access to harmful content. For example, content providers and online platforms can set requirements to filter and block inappropriate content for children. Some screen time regulations are possible, such as introducing maximum screen time recommendations for children and young people, and promoting apps and tools that help parents monitor and limit their children's digital device time. Policymakers can also develop and implement mechanisms to report abuse and harmful content online, and ensure that they are addressed quickly and effectively by online platforms and law enforcement agencies.

In addition to legislative activities, legislators usually have the proper tools to conduct large-scale educational and information activities, as well as social campaigns intended to increase public awareness of online safety, children's rights on the Internet, and methods of protection against digital threats. Digital education can be promoted by starting and supporting programs focused on the safe and conscious use of the Internet, critical online thinking, and digital skills, which are essential in

49 Fengchun et al., 2021, pp. 31–37.

today's world. It is also important to counteract digital exclusion. Policymakers can ensure that all students have equal access to digital resources and online education, which may include initiatives related to the availability of equipment and fast and secure Internet connections in homes and schools.

In summary, the safe development of children and adolescents using the Internet depends on what parents and teachers do and how legislators protect the online environment against undesirable phenomena. It should be remembered that parents and teachers can do the most at the early stages of the development of children and adolescents, which is why digital education should start from an early age at home, in kindergarten, and at school. Moreover, it should be constantly updated along with technological developments.

6. Summary

The impact of online platforms on the development of children and adolescents arouses many emotions and discussions among parents, teachers, and mental health and education specialists. There are an insufficient number of comprehensive publications in the literature on this subject that cover these phenomena comprehensively and use large samples. However, what is available provides some information about the nature of the phenomena in question and guidance on how to deal with them. The matter of research was complicated by the COVID-19 pandemic, which forced us to delve deeper into the digital world, contributing to the development of many platforms for communication, learning, and entertainment. In the era of digitisation and ubiquitous access to the Internet, online platforms have become an integral part of young people's everyday lives, offering them countless opportunities to gain experience, develop, and enjoy. However, apart from these benefits, there are challenges and potential risks that may affect their wellbeing and development.

On the one hand, the Internet is a rich source of knowledge and a tool that can significantly support the educational process. Access to teaching materials, online courses, and interactive educational applications enables children and young people to discover the world independently, develop passions, and acquire new skills. Moreover, social media platforms and communication applications make it easier to establish and maintain relationships with peers, which is crucial for social and emotional development. However, excessive Internet use and a lack of proper restrictions can lead to a number of negative consequences. Sleep disorders, Internet addiction, concentration problems, and cyberbullying are just some of the risks associated with the inappropriate use of online platforms. The issues of personal data security and privacy online are also important and require awareness and responsibility from young users.

Adults, parents, teachers, and legislators, play key roles in the face of these challenges. Through education, setting up clear rules for using the Internet, and promoting healthy digital habits, they can effectively support young people in safely

and constructively using online resources. It is also extremely important to build trust and open dialogues that will allow children and young people to express their concerns and problems related to life in the virtual world.

In summary, online platforms significantly impact the development of children and young people by offering both opportunities and challenges. The key to maximising benefits and minimising risks is the responsible use of the Internet supported by an aware and engaged adult environment. Thus, the digital world can become a safe and inspiring place for young users, supporting their comprehensive development.

Bibliography

Ahmed, G.K., et al. (2022) 'Relationship between time spent playing internet gaming apps and behavioral problems, sleep problems, alexithymia, and emotion dysregulations in children: a multicentre study', *Child and Adolescent Psychiatry and Mental Health*, 16(67), pp. 1–11; https://doi.org/10.1186/s13034-022-00502-w.

Akarsu, Ö., Budak, M.İ., Okanlı, A. (2022) 'The relationship of childhood trauma with cyberbullying and cyber victimization among university students', *Archives of Psychiatric Nursing*, 2022/41, pp. 181–187; https://doi.org/10.1016/j.apnu.2022.06.004.

American Psychiatric Association (2013) *Diagnostic and statistical manual of mental disorders.* 5th edn. Virginia: American Psychiatric Association Publishing; https://doi.org/10.1176/appi.books.9780890425596.

Anitha, F. S., et al. (2021) 'Association of digital media exposure and addiction with child development and behavior: A cross-sectional study'. *Industrial Psychiatry Journal*, 30(2), pp. 265–271; https://doi.org/10.4103/ipj.ipj_157_20.

Anthony, R., et al. (2023) 'Young people's online communication and its association with mental well-being: results from the 2019 student health and well-being survey', *Child and Adolescent Mental Health*, 28(1), pp. 4–11; https://doi.org/10.1111/camh.12610.

Baldwin, L. (2020) 'Cognitive and Emotional Development of Young People and the Development of Resilience' in Baldwin, L. (ed.) *Nursing Skills for Children and Young People's Mental Health.* Cham: Springer, pp. 37–53; https://doi.org/10.1007/978-3-030-18679-1_3.

Bates, L.C., et al. (2020) 'COVID-19 Impact on Behaviors across the 24-Hour Day in Children and Adolescents: Physical Activity, Sedentary Behavior, and Sleep', *Children*, 7(9), 138; https://doi.org/10.3390/children7090138

Bates, S., Greene, D., O'Quinn, L. (2021) 'Virtual Sport-Based Positive Youth Development During the COVID-19 Pandemic', *Child and Adolescent Social Work Journal*, 2021/38, pp. 437–448; https://doi.org/10.1007/s10560-021-00774-9.

Cerovac, M., Keane, T. (2025) 'Early insights into Piaget's cognitive development model through the lens of the Technologies curriculum', *International Journal of Technology and Design Education*, 2025/35, pp. 61–81; https://doi.org/10.1007/s10798-024-09906-5.

CDC (2024) 'Health Risks of Social Isolation and Loneliness', *cdc.gov*, 15 May [Online]. Available at: https://www.cdc.gov/social-connectedness/risk-factors/?CDC_AAref_Val=https://www.cdc.gov/emotional-wellbeing/social-connectedness/loneliness.html (Accessed: 9 April 2025).

Council on Communications and Media, et al. (2016) 'Media and young minds', *Pediatrics,* 138(5), e20162591; https://doi.org/10.1542/peds.2016-2591.

David, O.A., Predatu, R.M., Cardoș, R.A.I. (2018) 'A pilot study of the REThink online video game applied for coaching emotional understanding in children and adolescents in the therapeutic video game environment: The feeling better resources game', *Journal of Evidence-Based Psychotherapies*, 18(1), pp. 57–68; https://doi.org/10.24193/jebp.2018.1.5.

Dresp-Langley, B., Hutt, A. (2022) 'Digital Addiction and Sleep', *International Journal of Environmental Research and Public Health*, 19(11), 6910. https://doi.org/10.3390/ijerph19116910.

Durham K, et al. (2021) 'Digital Media Exposure and Predictors for Screen Time in 12-Month-Old Children: A Cross-Sectional Analysis of Data From a German Birth Cohort', *Frontiers in Psychiatry*, 2021/12, 737178; https://doi.org/10.3389/fpsyt.2021.737178.

Dutil, C., et al. (2022) 'Sleep timing and health indicators in children and adolescents: a systematic review', *Health Promotion and Chronic Disease Prevention in Canada: Research, Policy and Practice*, 42(4), pp. 150–169; https://doi.org/10.24095/hpcdp.42.4.04.

Eskandar, K. (2025) 'The digital trap: unraveling the neuropsychological impact of technology addiction', *Neuropsychological Trends*, 2025/37, pp. 7–23; https://doi.org/10.7358/neur-2025-037-eska.

Eurostat (2024) 'Individuals – frequency of internet use', *eurostat* [Online]. Available at: https://ec.europa.eu/eurostat/databrowser/view/ISOC_CI_IFP_FU__custom_6541841/bookmark/table?lang=en&bookmarkId=49d9ace1-03f3-4eb1-909b-09e67c2a5e1e (Accessed: 1 February 2024).

Farrington, D.P., et al. (2023) 'Cyberbullying research in Canada: A systematic review of the first 100 empirical studies', *Aggression and Violent Behavior*, 2023/69, 101811; https://doi.org/10.1016/j.avb.2022.101811.

Fengchun, M., et al. (2021) *AI and education: A guidance for policymakers*. Paris: UNESCO Publishing; https://doi.org/10.54675/PCSP7350.

Griffith, C.E., Tetzlaff-Bemiller, M., Hunter, L.Y. (2023) 'Understanding the cyber-victimization of young people: A test of routine activities theory', *Telematics and Informatics Reports*, 2023/9, 100042; https://doi.org/10.1016/j.teler.2023.100042.

Gundogdu, U., Eroglu, M. (2022) 'The relationship between dissociation symptoms, sleep disturbances, problematic internet use and online gaming in adolescents', *Psychology, Health and Medicine*, 27(3), pp. 686–697; https://doi.org/10.1080/13548506.2021.1984542.

Kesavelu, D., Sheela, K., Abraham, P. (2021) 'Stages of psychological development of child-an overview', *International Journal of Current Research and Review*, 13(13), pp. 74–78; http://dx.doi.org/10.31782/IJCRR.2021.131320.

Kuss, D. J., et al. (2014) 'Internet addiction: A systematic review of epidemiological research for the last decade', *Current pharmaceutical design*, 20(25), pp. 4026–4052; https://doi.org/10.2174/13816128113199990617.

Kamaşak, T., et al. (2022) 'An Investigation of Changing Attitudes and Behaviors and Problematic Internet Use in Children Aged 8 to 17 Years During the COVID-19 Pandemic', *Clinical Pediatrics*, 61(2), pp. 194–205; https://doi.org/10.1177/00099228211065842.

Karapetyan, A., Gardner, S. (2023) 'The Online and Offline Communication Preferences of Armenian Social Network Users', *Journal of Sociology: Bulletin of Yerevan University*, 14(2 (38)), pp. 66–80; https://doi.org/10.46991/BYSU:F/2023.14.2.066.

Kokka, I., et al. (2021) 'Exploring the Effects of Problematic Internet Use on Adolescent Sleep: A Systematic Review', *International Journal of Environmental Research and Public Health*, 18(2), 760; https://doi.org/10.3390/ijerph18020760.

Krishnan, V., et al. (2021) 'Early Social Experience and Digital-Media Exposure in Children with Autism Spectrum Disorder', *Indian Journal of Pediatrics,* 2021/88, pp. 793–799; https://doi.org/10.1007/s12098-021-03666-z.

Lustig, K.A., Cote, K.A., Willoughby, T. (2021) 'The role of pubertal status and sleep satisfaction in emotion reactivity and regulation in children and adolescents', *SLEEP Advances*, 2(1), zpab003; https://doi.org/10.1093/sleepadvances/zpab003.

Macit, H. B., Macit, G., Güngör, O. (2018) 'A research on social media addiction and dopamine driven feedback', *Journal of Mehmet Akif Ersoy University Economics and Administrative Sciences Faculty,* 5(3), pp. 882–897; https://doi.org/10.30798/makuiibf.435845.

Mills, K.L. (2016) 'Possible Effects of Internet Use on Cognitive Development in Adolescence', *Media and Communication*, 4(3), pp. 4–12; https://doi.org/10.17645/mac.v4i3.516.

Muzni, K., et al. (2021) 'Self-reported sleep quality is more closely associated with mental and physical health than chronotype and sleep duration in young adults: A multi-instrument analysis', *Journal of Sleep Research*, 30(1), e13152; https://doi.org/10.1111/jsr.13152.

Nasith, A., Bashith, A. (2023) 'The Optimization of Children's Autism Psychosocial Service on Online School Learning', *Scaffolding: Journal Pendidikan Islam dan Multikulturalisme*, 5(2), pp. 685–702; https://doi.org/10.37680/scaffolding.v5i2.2371.

Nguyen, T.T.P., et al. (2022) 'Parent–Child Relationship Quality and Internet Use in a Developing Country: Adolescents' Perspectives', *Frontiers in Psychology*, 2022/13, https://doi.org/10.3389/fpsyg.2022.847278

Poisson, C.L., Engel, L., Saunders, B.T. (2021) 'Dopamine Circuit Mechanisms of Addiction-Like Behaviors', *Frontiers in Neural Circuits*, 2021/15, 752420; https://doi.org/10.3389/fncir.2021.752420.

Qustodio Technologies (2023) 'Qustodio releases 2022 Annual Report, From Alpha to Z: Raising the digital generations', *qustodio.com,* 7 February [Online]. Available at: https://www.qustodio.com/en/research/qustodio-releases-2022-annual-report/ (Accessed: 9 January 2024).

Ramli, R., Purba, K.R. (2023) 'The development of a Game for Cognitive Remediation Therapy (CRT) to Improve Attention Span and Memory Among Children with Learning Disabilities' in IEEE (ed.) *2023 19th IEEE International Colloquium on Signal Processing and Its Applications (CSPA)*. Piscatawa: IEEE, pp. 1–6; https://doi.org/10.1109/CSPA57446.2023.10087548.

Restrepo, A., et al. (2020) 'Problematic internet use in children and adolescents: associations with psychiatric disorders and impairment', *BMC Psychiatry*, 2020/20, 252; https://doi.org/10.1186/s12888-020-02640-x.

Ross, A.C., et al. (2021) 'Associations Between Off-line Social Functioning and Online Social Network Interactions Among Emerging Adults', *Emerging Adulthood*, 9(4), pp. 292–304; https://doi.org/10.1177/2167696820905179.

Rossi, L., Behme, N., Breuer, C. (2021) 'Physical Activity of Children and Adolescents during the COVID-19 Pandemic – A Scoping Review', *International Journal of Environmental Research and Public Health*, 18(21), 11440; https://doi.org/10.3390/ijerph182111440.

Saracho, O.N. (2023) 'Theories of Child Development and Their Impact on Early Childhood Education and Care', *Early Childhood Education Journal,* 2023/51, pp. 15–30, https://doi.org/10.1007/s10643-021-01271-5.

Singh, S., Balhara, Y.P.S. (2021) '"Screen-time" for children and adolescents in COVID-19 times: Need to have the contextually informed perspective', *Indian Journal of Psychiatry*, 63(2), pp. 192–195; https://doi.org/10.4103/psychiatry.IndianJPsychiatry_646_20.

Smahel, D., et al. (2020) *EU Kids Online 2020: Survey results from 19 countries.* London: The London School of Economics and Political Science; https://doi.org/10.21953/lse.47fdeqj01ofo.

Stoilova, M., Livingstone, S., Khazbak, R. (2021) *Investigating Risks and Opportunities for Children in a Digital World: A rapid review of the evidence on children's internet use and outcomes. Innocenti Discussion Paper 2020-03.* Florence: UNICEF Office of Research [Online]. Available at: https://www.unapcict.org/sites/default/files/2021-03/Investigating-Risks-and-Opportunities-for-Children-in-a-Digital-World.pdf (Accessed: 13 February 2024).

Suziedelyte, A. (2012) 'Can Video Games Affect Children's Cognitive and Non-Cognitive Skills?', *UNSW Australian School of Business Research Paper,* 2012/37; http://dx.doi.org/10.2139/ssrn.2140983

Tomoniko, S. (2019) 'Anxiety at Teenagers' Fingertips', *BU Journal of Graduate Studies in Education*, 11(2), pp. 4–11.

Underwood, M.K., George, M.J., Burnell, K. (2023) 'Socially networked lives: How adolescents and young adults engage with social media' in American Psychological association (ed.) *APA handbook of adolescent and young adult development*. Washington, DC: American Psychological Association, pp. 307–321; https://doi.org/10.1037/0000298-019.

Vejmelka, L., Matković, R. (2021) 'Online Interactions and Problematic Internet Use of Croatian Students during the COVID-19 Pandemic', *Information*, 12(10), 399; https://doi.org/10.3390/info12100399.

Wendel, F., et al. (2024) 'Interventions to build resilience and to ameliorate negative psychosocial effects of the COVID-19 pandemic on children and adolescents: a systematic review and meta-analysis', *European Child and Adolescent Psychiatry,* 2024/33, pp. 3707–3726; https://doi.org/10.1007/s00787-023-02280-y.

Wolf, C., et al. (2018) 'Children's Environmental Health in the Digital Era: Understanding Early Screen Exposure as a Preventable Risk Factor for Obesity and sleep Disorders', *Children*, 5(2), 31; https://doi.org/10.3390/children5020031.

WHO (2019a) 'Eleventh Revision of the International statistical Classification of Diseases and Related Health Problems (ICD-11)' [Online]. Available at: https://icd.who.int/en/docs/icd11-license.pdf (Accessed: 31 July 2025).

WHO (2019b) *Guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age*. Geneva: World Health Organization.

WHO, UNICEF (2022) *Nurturing care handbook. Strategic action 5: scale up and innovate. How to expand programmes, engage with the private sector and use digital solutions*. Geneva: World Health Organization and the United Nations Children's Fund (UNICEF).

Xiang, M., Zhang, Z., Kuwahara, K. (2020) 'Impact of COVID-19 pandemic on children and adolescents' lifestyle behavior larger than expected', *Progress in Cardiovascular Diseases,* 63(4), pp. 531–532; https://doi.org/10.1016/j.pcad.2020.04.013.