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TechWell

Report on screen "addiction" in France: Trends, Challenges and Solutions

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TECHWELL Technological Wellness for Young People

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Foreword

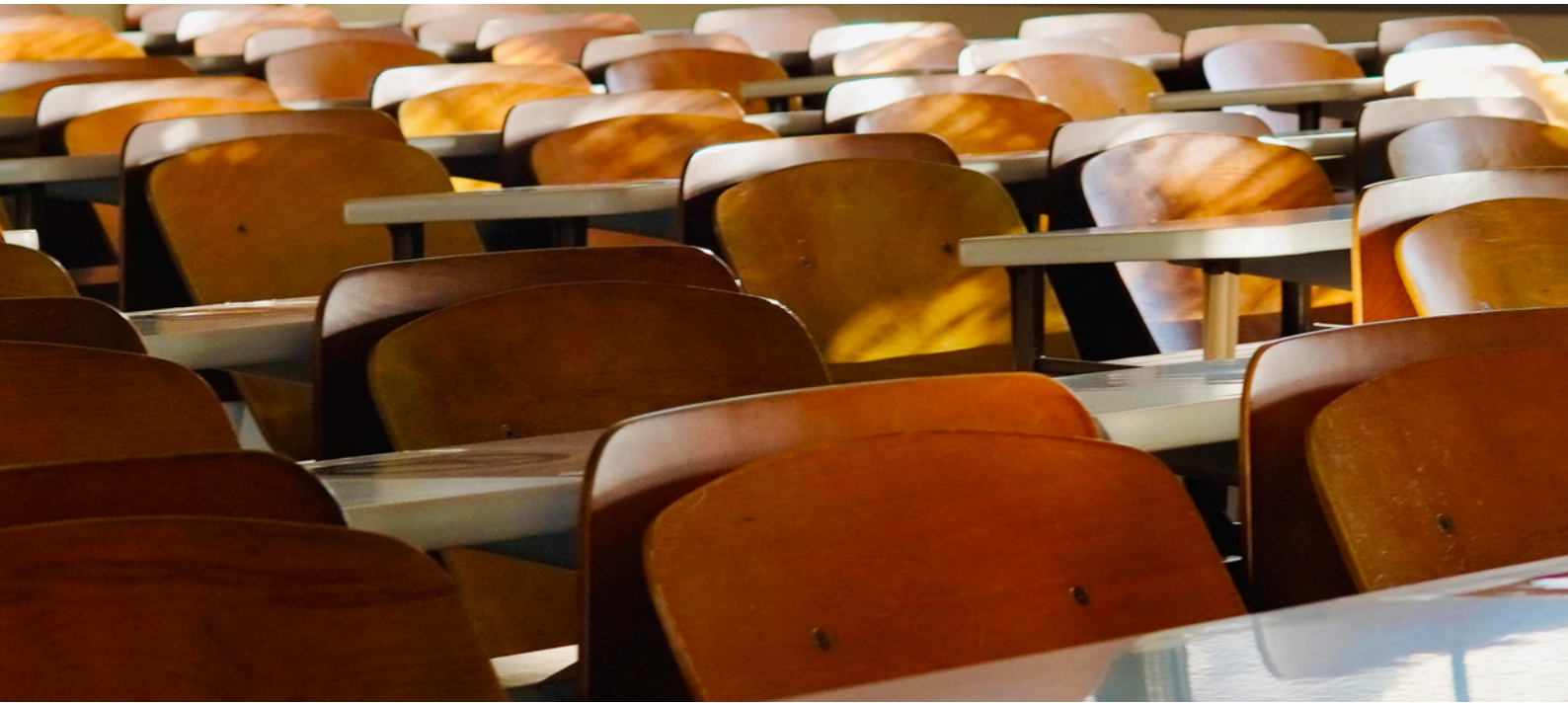
Screens and digital technology have become an essential part of our society. They are everywhere, in the workplace, in the home and in public spaces. They have become commonplace tools for professional use, training and leisure. While the presence of screens in our daily lives, and in those of young people, is not new - it began with the arrival of television in the home - it has grown considerably over time with the arrival and development of the Internet, the diversification of available terminals and the multiplication of uses enabled by all these tools. It has particularly accelerated since the recent arrival of individual and mobile devices, tablets and smartphones. Children and teenagers, like society, live in regular contact with and use screens and digital tools.

Smartphones, tablets, computers, TV sets, consoles... Screens and the Internet are part of our daily lives, providing a wide range of services, including facilitating our access to information, processing data and entertaining us.

While beneficial in many areas, this “cohabitation” with screens has also given rise to difficulties and concerns, particularly when use is considered excessive - and is then associated with problems of sleep, school performance and so on. The term “screen addiction” has thus become part of the public debate.

The subject was particularly taken up during and after the periods of confinement linked to Covid-19. But what can research really say about the “effects of exposure to screens”? How do the medical criteria for addiction behave when applied to screens? And what proportion of screen users are affected? This raises the question of the lack of reliable studies based on medical criteria of addiction.

The aim of this report is to provide an overview of the current situation, shedding light on these questions and the difficulties involved in studying the relationship between children and teenagers and screens, in relation to the impact on their health in France. The study is deliberately not limited to the problematic use of smartphones, since young people are exposed to a multitude of other screens that are also connected.



1.Introduction

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1.1 Relevance and current state of the topic

The omnipresence of digital technologies in contemporary French society raises legitimate concerns about their effects on health and well-being. The increasing digitization of daily, professional and recreational activities, accelerated by the COVID-19 health crisis, has considerably increased screen exposure time across all age groups. Concerns are particularly acute for children and adolescents, whose neurological, cognitive and social development could be affected by early, passive and intensive overexposure to screens. According to ANSES (Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail) data[1] published in 2022, the average time spent in front of screens by French teenagers increased by 40% between 2015 and 2021, reaching almost 6 hours a day, not counting the time spent on digital school activities. This rapid evolution justifies an in-depth analysis of the issues associated with the risk of screen addiction.

Adolescence is a pivotal period, during which acquired habits tend to be perpetuated or even accentuated into adulthood, with associated effects on health. Today's environment is particularly conducive to an increase in sedentary lifestyles, especially "screen time", with the development of an abundant digital offering and new technologies further encouraging sedentary lifestyles. The effects of confinement[2] have also accentuated the trend towards physical inactivity and a sedentary lifestyle.

Screen use has become ubiquitous, especially among children and teenagers. For some, this massive use can become a problem. However, it's important to distinguish between screen abuse and true addiction. This can have major implications for young people's mental health and well- being.

34% of Internet users aged 15 to 74 report at least one harmful effect of screen use in their daily lives...

According to a study by INSEE[3] in 2023, 34% of Internet users aged 15 to 74 report at least one harmful effect of screen use in their daily lives, outside of study or work time. Younger users are particularly concerned: 57% of under-20s and 49% of 20-34s

By far the most common adverse effect is reduced sleep time (25%), followed by neglect of other leisure activities (10%) and feelings of obsession with screens (9%). In addition, 5% of Internet users say they have conflicts with friends and family because of their use of screens, and 4% feel depressed because of screens. Nevertheless, around a third of those questioned are aware of the harmful effects of screen use and are trying to limit their screen time; 7% are unable to do so.

1.2 Objectives

The approach adopted in this report favors scientific rigor and critical analysis of available data, while recognizing the methodological limitations of existing studies and the complexity of a phenomenon that is undergoing rapid and constant change.

This report aims to:

- Draw up an objective, documented inventory of the effects of exposure to screens in France;
- Analyze the scientific data available on the mechanisms, risk factors and consequences of this exposure;
- Determine the extent to which it is possible to speak of addiction to screens in general, and to smartphones in particular;
- Identify possible recommendations to guide public policies and professional practices.

2.Context and trends in France

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2.1 The essentials about screen usage in France

In 2023, 92.8% of the households in France were considered connected[4] with 47.4 million Internet users on a monthly basis[5]. Two out of three French people connect every day via social networks and instant messaging. Most usage is concentrated on the smartphone, given the ease with which it can be used to connect anywhere, anytime.

According to a study carried out by NodVpn in 2021, the French spend an average of 56 hours a week on the Internet (or more than 27 years of their lives, for a lifespan of 82 years), with 20 hours a week spent in the course of their professional activities and 36 hours in their free time. In comparison with France, Spanish people spend an average of 28 years, 9 months and 10 days of their lives online, while Germans spend 24 years, 8 months and 14 days online.

The figures obtained in the study highlight our main use of the Internet in France: social networks, on which we spend 6 hours and 39 minutes. Other activities that stand out are streaming sites for 6 hours and 18 minutes, youtube and other videos for 4 hours and 40 minutes, music for 3 hours and 30 minutes, and online searches for 2 hours and 48 minutes.

These digital practices are evolving rapidly, bringing about profound changes in our societies (modes of socialization, leisure activities, professional practices, the rise of new economic fields, etc.). While screens are now an essential part of our lives, and can be of interest for professional, leisure or educational purposes, they can also, at any age, give rise to risks associated with excessive or problematic use. For adults, the combination of personal and professional use of screens, accentuated by the development of teleworking, can have a negative impact on well-being and mental health. In the private sphere, and whatever the age, video games can become problematic when associated with a loss of control and affect other areas of the player's life. A majority of those surveyed in the MILDECA / Harris Interactive 2024 Barometer on screen use and associated problems declared that they were unable to reduce or stop their activities when they would have liked to do so.[6]

The report “Children and Screens: In Search of Lost Time”, submitted to the French President in April 2024, reveals a consensus on the deleterious consequences of screens on several aspects of children's and teenagers' health. Time spent in front of a screen, particularly if unaccompanied, can encroach on learning that is essential to their physical, mental and social development.

Excessive use can have consequences for children's brain development, their learning of fundamental skills, the development of executive functions and attentional skills[7]. To protect children and their well-being, those around them must be vigilant and ensure that screens are used appropriately, so that their use remains positive in terms of psychological, cognitive and learning development.

Providing parents and users with simple guidelines and tools to help them better master digital practices, informing professionals about reliable resources to support them, developing research to gain a better understanding of vulnerabilities, and experimenting with innovative ways of dealing with problematic uses are all priorities for public action.

> ***“Excessive use can have consequences for children's brain development, their learning of fundamental skills, the development of executive functions and attentional skills”***

2.2 Covid-19 pandemic and its impact on digital practices

The COVID-19 health crisis was a major catalyst for digital usage in France (Confinement, 2020).[8] The period of confinement was conducive to the use of new technologies, to keep in touch with friends and family, keep informed or keep busy (films, TV series, social networks, etc.). Of those surveyed, 59% reported an increase in the amount of time spent in front of a screen in their free time. The average time spent in front of a screen during free time was 5 hours a day during the confinement period. Of all those surveyed, almost a quarter said they spent 7 hours or more a day. The increase in screen time was more pronounced among young people, those with higher levels of education, those who had worked from home during confinement, and those living in urban areas.

The increase in screen use has been confirmed by an international study (Madigan et al., 2022)[9] corroborating the negative effect of the 2020 confinements on screen time. The average time spent in front of screens by 3–18-year-olds rose from 162 minutes a day (2h42) to 246 minutes (4h6) a day during the pandemic, according to the international study of 30,000 children of different nationalities. The authors explain that "to cope with these unprecedented disruptions to normal living conditions, many children and families probably used digital devices to occupy their time during the pandemic".

When it comes to total cumulative time, the latest benchmark study in France dates to 2015, well before the Covid period (Etude Esteban conducted by Santé publique France, presented in section 3 of this report). According to this study, children aged 6 to 17 spent an average of 4 h11 min a day on a screen. There is also a clear trend towards a marked increase in screen time among children and teenagers, when we look at the studies available for earlier periods.

2.3 Covid-19 pandemic and its impact on digital practices

The French digital ecosystem has undergone a rapid transformation over the past decade. According to data[10] from CREDOC (Centre de Recherche pour l'Étude et l'Observation des Conditions de Vie), the rate of smartphone ownership has risen from 17% in 2011 to 84% in 2023, while the daily Internet connection rate has reached 92% of the French population in 2023, compared with 71% in 2013. This evolution has been accompanied by a diversification of digital uses: time spent on social networks increased by 60% between 2015 and 2023, while the consumption of streaming video content tripled over the same period.

In January 2024[11] (Médiamétrie, 2024), 84.7% of 15-24 year olds - or 6.6 million young people - went online every day. On average, 15-24 year-olds spend 3h50 a day on the internet, including 3h34 on their cell phone. This is far more than the general population, 74.7% of whom surfed the Internet every day. Internet users spend an average of 2h23 a day surfing. These young people consult the media mainly from their smartphones, even more than the rest of the population. Social networks account for 58% of their daily time spent online. More than 8 out of 10 (81.3%) of them logged on every day in January 2024. These sites and applications are the gateway to many of their uses: watching videos, using instant messaging, playing video games, consulting good deals, news or photos. More than one in three 15-24 year-olds (36.2%) say that keeping in touch with friends is their primary motivation for joining Instagram. The desire to share their passions and interests is another strong motivation (for almost one in four).

These data do not cover total screen time and other uses.

> ***"According to data from CREDOC (Centre de Recherche pour l'Étude et l'Observation des Conditions de Vie), the rate of smartphone ownership has risen from 17% in 2011 to 84% in 2023"***

2.4 Public policies and legal framework

On ne peut comprendre les politiques publiques et le cadre légal concernant les addictions qu'en les mettant en perspective avec une politique plus large d'accès à la citoyenneté numérique commune aux Etats membres du Conseil de l'Europe qui a déclaré, 2025 comme l'année européenne de l'éducation à la citoyenneté numérique.[12]

At the level of the 27 member states of the European Union, the European Commission notably supports national campaigns to raise public awareness of the challenges of digital citizenship and promote responsible online behavior and has included the digital transition as one of the 4 transversal priorities of the European Erasmus+ 2021-2027 program.

Most member states have launched national campaigns to raise public awareness of the challenges of digital citizenship and promote responsible online behavior.

France, for example, has launched a digital strategy for education 2023-2027, based on several key objectives to strengthen pupils' digital skills and integrate digital tools into teaching.[13] The strategy is essentially based on three points.

Firstly, it aims to strengthen digital governance by improving cooperation between education stakeholders at national and local levels, and by sharing indicators for steering and evaluating digital projects.

Secondly, it aims to develop students' digital skills by ensuring the acquisition of digital competencies throughout the school career and promoting digital citizenship by developing critical thinking and reinforcing media and information literacy.

Thirdly, it is committed to supporting the educational community by providing teachers with resources and training to use digital tools effectively and simplifying access to digital services by creating a "resource account" for students.

Fourthly, it seeks to improve IT tools by developing their accessibility, quality and eco- responsibility, and to accelerate digital transformation by supporting the pooling of resources.

These objectives aim to prepare students for a digital future, while ensuring responsible and beneficial use of technologies. However, they are still confronted with perverse effects identified as early as 2008, which have led to a series of preventive measures and changes to the legislative framework.

Nation-wide prevention measures. France has gradually developed a number of national prevention systems, with the interministerial mission for the fight against drugs and addictive behaviour playing a major role (MILDECA, [14])

Created in 1982 and placed under the authority of the Prime Minister since 2008, the MILDECA (Mission interministérielle de lutte contre les drogues et les conduites addictives) leads and coordinates government action in the fight against drugs and addictive behavior. It is responsible for drawing up the 2023-2027 Interministerial Strategy for the Fight against Addictive Behavior (SIMCA), and for ensuring its implementation, particularly with regard to the physical, psychological and cognitive development and academic success of all children. Led by MILDECA (Mission Interministérielle de Lutte contre les Drogues et les Conduites Addictives), the national mobilization plan against addictions (2018-2022) included for the first time a specific section on behavioral addictions, with actions targeted at problematic screen use.[15]

Concurrently, the Haut Conseil de la Santé Publique (HCSP) had been asked by the Director General of Health on August 1, 2018, to issue an opinion and recommendations on the effects of children's and young people's exposure to screens. The HCSP, in an initial opinion dated December 12, 2019, emphasized that the effects of early exposure to screens, on children's physiological, neurocognitive and behavioral development.[16] This opinion is based on a report analyzing the scientific data available on the "classic" use of screens by children and adolescents, the conclusions of which highlighted the major role of social distributions on the impact of exposure to screens.

Experts have gradually laid down rules for the proper use of screens. Among the best- known recommendations is the "3-6-9-12" rule suggested in 2008 by the psychiatrist Serge Tisseron. In concrete terms, this rule is as follows: no screens before age 3; no portable game consoles before age 6; no Internet before age 9 (then "accompanied" Internet until the start of secondary school); Internet alone possible from age 12, but with caution. Since 2011, this rule, which has the merit of clarity and legibility, has been strongly relayed by pediatricians and in the services of Protection Maternelle et Infantile (PMI) and has become a reference. The PMI centers provide preventive care, information and medical follow-up for children aged 0 to 6, and in some cases for pregnant women too.

Another recommendation is that of the "four steps" put forward by clinical psychologist Sabine Duflo, who proposes the following rules: "no screens before going to school, no screens in the bedroom, no screens before going to bed and no screens during meals".

Recommendations on screen time by age have also been put forward. However, references in this area are plural and insufficiently harmonized. Serge Tisseron, for example, specifies that the "3- 6-9-12" rule is necessary, but that "it is not sufficient on its own". In addition, he recommends that "screen time should be regulated at all ages" and, in particular, that screen time should not exceed 1 h 30 min per day for children aged 3 to 5, and 2 hours for those over 6.

Current regulations on the protection of minors in France. The French regulatory framework for protecting minors from digital risks has been considerably strengthened.

1. Liability of pornographic sites: French law establishes the principle that pornographic sites are liable for minors' access to their content. The law of July 30, 2020, aimed at protecting victims of domestic violence strengthened the powers of ARCOM, which can now issue formal notices to pornographic sites that fail to meet their obligations, and take legal action to have them blocked.[17] The law aimed at securing and regulating the digital space (“SREN” law), definitively adopted on April 10, 2024, completes the framework by once again strengthening ARCOM's powers and drawing up a binding reference framework for age verification systems.

2. Gambling: The law of May 12, 2010, requires gambling operators to prevent even emancipated minors from taking part in the gambling and betting activities they offer.[18]

3. Social networks: The law of July 7, 2023, (known as the "Marcangeli law") sets the age of digital majority at 15 for the registration and use of social networks. Under this age, children may only register on a social network with the express authorization of one of the holders of parental authority.[19]

4. Influencers: The law of June 9, 2023, aimed at regulating commercial influence and combating the abuses of influencers on social networks defines and regulates the activity of influencers on social networks. The rules on child labor for Youtubers, laid down by the law of October 19, 2020, are extended to all online platforms.[20]

5. Commercial exploitation of the image of children under 16 on online platforms: the Law of July 30, 2020, aimed at framing, a pioneer in Europe, regulates the activity of child influencers and provides for specific protection devices.[21]

6. Parental control: the law of March 2, 2022, (known as the "Studer law") now requires manufacturers of connected devices to install a parental control system, and to offer free activation when the device is first put into service.[22]

7. Fighting online hatred: The law of July 7, 2023 (known as the "Marcangeli law ") and the recently adopted SREN law stipulate that people convicted of online hate, cyber-harassment or other serious offenses may be banned from social networks by a judge for 6 months, or one year in the event of a repeat offence.[23]

8. Respect for children's image rights: The law of February 19, 2024, amends the Civil Code to introduce the notion of privacy into the definition of parental authority, enshrining parents' obligation to ensure respect for their child's private life, including the right to an image.[24]

Although France has taken steps to protect the very young with the introduction of a specific legal framework, enforcement of several provisions remains inadequate. An assessment of the effective application of these provisions, carried out by ARCOM (Autorité de Régulation de la Communication Audiovisuelle et Numérique) in 2023, nevertheless reveals varying levels of compliance across sectors, and difficulties in enforcement, particularly concerning age verification.

Bill to prevent excessive exposure of children to screens. The bill proposal nb. 757 related to the prevention of excess exposition of children to screens, submitted on January 19, 2023, unquestionably corresponds to the concerns and expectations of many parents. It does, however, have a number of limitations.[25]

Firstly, the various screens are treated indiscriminately and presented as substances whose consumption should be reduced. Yet all experts now agree that while time spent on screens is the least bad possible criterion for problematic use, it is at the same time a very bad criterion: it is essential to take into account the existence or absence of support, the interactive or non- interactive nature of the medium, and the content that is more or less adapted to the age of the user. Moreover, the isolated effect of screens on development diminishes when we take into account the lack of access to toys, leisure activities and outdoor equipment, and the lack of people available, physically or psychologically, for interaction.[26] Both of these factors are associated with poor socio-economic conditions. More than the amount of time a child spends in front of screens, it's the assessment of his or her general lifestyle and the impact of their use on his or her overall health that need to be taken into account.

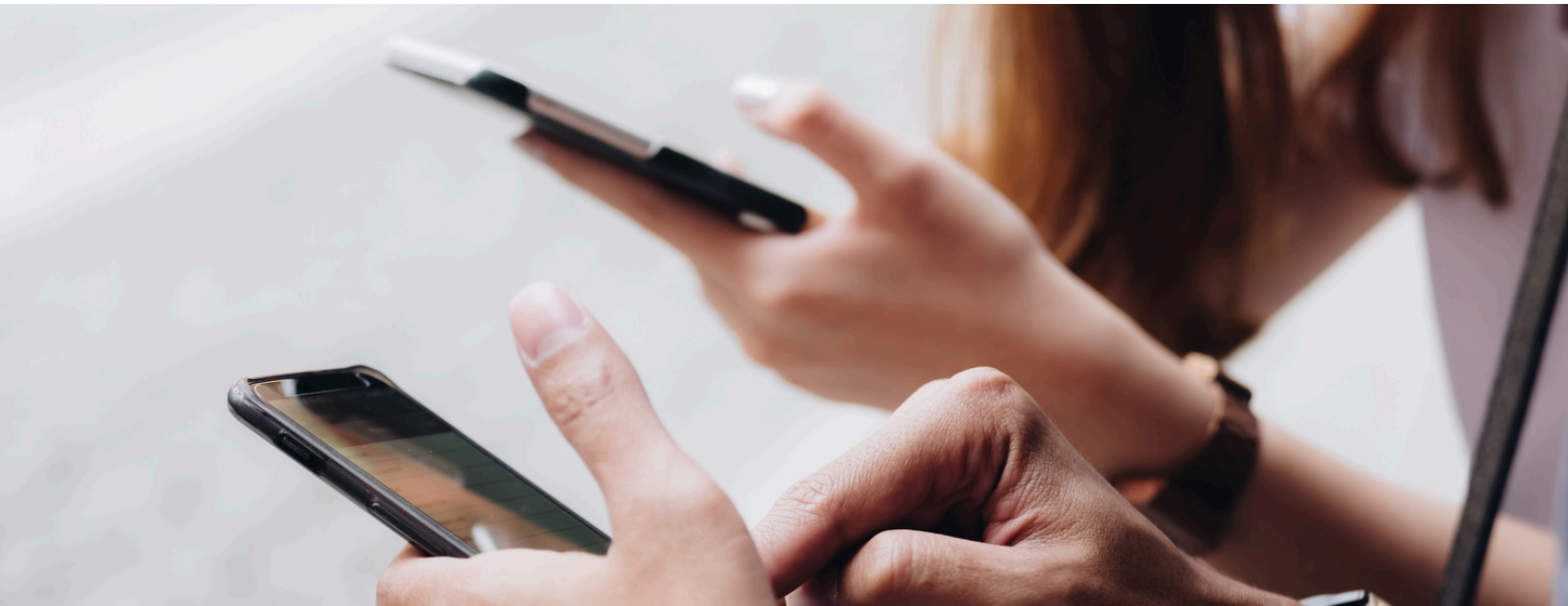
In the same vein, it is problematic that this law claims to find its place "via the insertion of a dedicated chapter in the public health code, alongside the fight against addictions such as smoking or alcoholism". For the international community, there is no such thing as "screen addiction". Since 2018, only a gaming disorder exists in the 11th version of the ICD. To qualify as an addiction, the disorder must have existed for more than 12 months, with significant consequences for personal, family, social and professional activities.

All other interests are neglected, including sleep and eating. It is a "behavioral" addiction: unlike an addiction to a toxic substance, there is no physiological withdrawal syndrome in the event of deprivation, and no risk of relapse after cessation, whereas a person addicted to alcohol or tobacco risks relapse if he or she resumes consumption, even after several years of abstinence.

Finally, this law focuses on prevention messages concerning "children's excessive exposure to screens", and makes no mention of the vital need to inform parents about the risks to their young children of using their cell phones while interacting with them. The deleterious consequences of this practice are the subject of a growing number of publications under the name of "techno- ferencing".[27] In particular, it can generate psychological insecurity and attachment disorders. In other words, in the first years of life, it's as much a problem of "overexposing children to screen- obsessed parents" as it is of "overexposing children to screens".

For all these reasons, the measures that this bill could inspire could, if we're not careful, turn out to be counterproductive by promoting campaigns focused on reducing screen time, at the risk of ignoring the need to learn how to use screens in a virtuous way, and the need for children to benefit from alternatives that currently exist only for the most fortunate. Preventing screen abuse is at least as much a matter of supporting parenthood and urban policy as messages aimed at reducing screen consumption.

> ***"In other words, in the first years of life, it's as much a problem of 'overexposing children to screen-obsessed parents' as it is of 'overexposing children to screens'."***



Comparison with other models in Europe. The few comparative studies funded by European projects clearly demonstrate the limits of public policy at national level.[28]

Indeed, while all public policies and changes to the regulatory framework at national level remain positive, their impact remains very limited given the power of the algorithms of META platforms (Facebook and Instagram) and Tik Tok. The responsibility of these platforms and their algorithms for addictive behavior is particularly clear.

Member states have therefore developed legal tools on a European scale based primarily on the General Data Protection Regulation RGPD voted in 2016 and the Digital Service Act (DSA) voted in 2022. The General Data Protection Regulation (GDPR), Regulation (EU) 2016/679 of the European Parliament and of the Council of April 27, 2016, on the protection of individuals with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) plays a crucial role in protecting minors online, including against screen addiction.

The RGPD requires parental consent to be obtained for the processing of minors' personal data. In France, this consent is required for minors under the age of 15. This means that online platforms must verify users' ages and obtain parental consent before collecting and processing children's data. This measure aims to protect minors from the risks associated with the collection and use of their personal data. The RGPD grants minors specific rights regarding their personal data. They have the right to access their data, rectify it, delete it and object to its processing. These rights enable minors to better control their online presence and reduce the risk of addiction by limiting exposure to potentially harmful content.

The GDPR recognizes that children deserve specific protection when it comes to their personal data, as they may be less aware of the risks and consequences. Platforms must therefore design their services taking into account the vulnerability of minors and implementing appropriate protection measures. The GDPR encourages the use of parental control devices to protect children online. These tools enable parents to monitor and limit their children's use of screens, helping to prevent addiction. The RGPD requires platforms to provide clear and accessible information on how minors' data is used. This transparency enables children and parents to understand the risks associated with screen use and take steps to mitigate them.

> **In 2022, the European Union through the Digital Services Act (DSA) recognized in its Regulation (EU) 2022/2065 that 'The protection of minors is an important policy objective of the Union.**

In summary, the GDPR strengthens the protection of minors online by requiring parental consent, granting specific rights to children, recognizing their need for special protection, encouraging parental control and ensuring transparency on data use.

These measures are helping to create a safer online environment and reduce the risks of screen addiction, but they have proved insufficient. In 2022, the European Union through the Digital Services Act[29] (DSA) recognized in its Regulation (EU) 2022/2065 that "The protection of minors is an important policy objective of the Union". This paves the way for a comprehensive approach to online safety by placing significant responsibility on online platforms to protect young users from the dangers of excessive Internet and smartphone use.

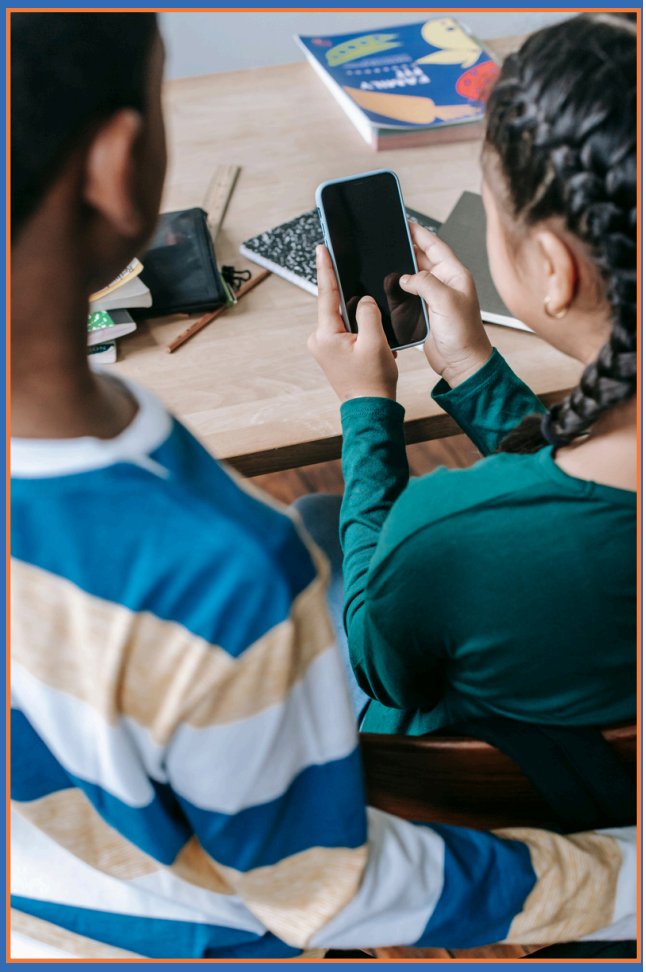
Article 28 (1) "Online protection of minors" of the Regulation requires platforms to prioritize young users' safety (and in particular addiction risks) in design features or content. This means that platforms must create applications and online spaces that are safe and appropriate for young users, going beyond a uniform approach.

Furthermore, Article 28(2) of the Regulation reinforces this commitment by requiring platforms to take “appropriate and proportionate measures” to protect minors. This provision is crucial in the context of online addiction. It obliges platforms to actively mitigate the risks associated with excessive screen time and exposure to potentially harmful content.

A first example of the application of the DSA is the launch of formal proceedings against the TikTok app on February 19, 2024, due to concerns about child safety and online addiction.[30] The EU is investigating whether TikTok has adequately addressed systemic risks, particularly those related to addictive design, exposure to harmful content, data privacy of minors and the implementation of sufficient parental controls.

All of these measures are positive, but it would appear necessary to develop a genuine Europe- wide public policy based on these legal tools.

3.Selected scientific studies on the effects of screen time



3.Selected scientific studies on the effects of screen time

Several studies have been carried out on exposure time and equipment rates among young people, but it is relatively difficult to assess exposure time, particularly among young people. Indeed, we must be cautious about the results of surveys carried out at regular intervals on exposure time, which can be the source of untruths. We have therefore chosen to focus on scientific and cohort studies in this report:

- IPSOS study, junior connect, 2022 edition on equipment rates[31]
- The IPSOS study, Open, 2024 edition, which goes beyond equipment rates and looks at exposure time as a function of usage.[32]
- The ESTEBAN study, which looks at the level of physical activity (in terms of frequency, duration and intensity) and sedentary behavior (daily duration of sedentary activities, time spent in front of a screen) in the context of all their activities.[33]
- Longitudinal studies (ELFE[34] and EDEN-N[35] cohorts) aimed at understanding the impact of screen time on children's cognitive and language development.

What we can already learn from these studies is that, as age increases, exposure time increases, with variable exposure times, and that the effects of this exposure time on health are multifactorial.

3.1 IPSOS "Junior connect" study, 2022 edition

In terms of equipment levels, the study reveals that 13-19 year-olds own an average of 2.9 personal screens. This figure increases with age, reaching 1.6 for 7-12 year-olds. In detail, how is this distributed? The smartphone remains the preferred personal terminal for teenagers; 89% of 13-19 year-olds own one, 12 points more than in 2016. This increase is also very strong among 7- 12 year-olds (35% equipped in 2021). Contrary to popular belief, only 35% of 7-12 year-olds own a smartphone, and the average age of acquisition is 9.8 years. The computer is the second most popular screen for the over-13s: nearly 7 out of 10 (69%) own one. However, it remains a secondary device among 7-12 year-olds (19% ownership). The games console remains a popular terminal, with 58% of 7-12 year-olds and 63% of over-13s owning a personal console. While this rate is eroding slightly, this doesn't mean that young people are playing less, on the contrary: a proportion of their gaming has now migrated from the console to the computer, and above all to the smartphone.

While the equipment used by the under-20s is evolving and differs according to age, screen time is increasing for all children surveyed, mainly to the benefit of the Internet, which has become the leading medium for watching videos, chatting with friends, listening to music and playing video games: 6 hours a week for the under-6s, 9 hours a week for the 9-12s and almost 18 hours a week for the 13-19s.

The results show that the Internet is mainly used to watch videos on streaming platforms, replay channels and SVOD platforms: Netflix in the lead (70% of over 13s), followed by Amazon PrimeVideo and Disney. Usage then diverges according to age: the under-12s also use the Internet to watch live TV and tutorials, while the over-13s primarily favor social use: video-driven social networks (Youtube, Snapchat, Instagram, TikTok) and video games (Fortnite, Discord, Twitch), and instant messaging. Listening to music is also one of the most widespread uses, on YouTube, Spotify and Deezer.

3.2 .IPSOS study, 2024 edition

Beyond the simple question of exposure time, it is essential to know how this time is consumed, depending on the use.

The study shows that the time spent is not primarily recreational. In the case of 15–17-year-olds, for example, the time they spend on their smartphone averages 4 hours 43 minutes. The average time spent in school during the week for this same group of young people is 2h43. This information puts the screen time variable into perspective considerably and raises the question of whether it's normal for a student to spend 2h40 a day on a screen outside school hours, doing school-related activities. The screen time variable is clearly insufficient if it is not related to screen use. It is essential to study the effects of screens in relation to usage.

Even among the very young (9-12 years), access to social networks is problematic. In declarative terms, 63% of very young people (aged 9-12) claim to be registered on social networks, even though they are normally only accessible from the age of 13.

> ***In the case of 15–17-year-olds, the time they spend on their smartphone averages 4 hours 43 minutes.***

3.3 ESTEBAN study

The Esteban study was carried out on a sample of children aged 6 to 17 and adults aged 18 to 74 living in mainland France. Subjects were randomly selected according to a three-stage sampling plan, and included from April 2014 to March 2016, to consider the seasonal nature of their diet and possible exposures. Data collection on physical activity and sedentariness aimed to assess the population's level of physical activity and its adequacy with health recommendations.

The aim was to measure the level of physical activity (in terms of frequency, duration and intensity) and sedentariness (daily duration of sedentary activities, time spent in front of a screen) of adults and children, in the context of all their activities (work, school, home, leisure, etc.). These data were collected via self-questionnaires, from a nationally representative sample of 2,682 adults and 1,182 children aged 6 to 17.

> ***The Esteban study was carried out on a sample of children aged 6 to 17 and adults aged 18 to 74 living in mainland France.***

Concerning sedentary lifestyles, almost half of children aged 6-10 said they spent 3 hours or more in front of a screen every day, rising to 70% of 11-14 year-olds, 71% of girls and 87% of boys aged 15-17. On average, between 2006 and 2015, the daily time spent in front of a screen increased by 25 minutes among 6-10 year-olds, by 1h15 among 11-14 year-olds and by almost 2h among 15- 17 year-olds.

In 2016, children aged 6-17 spent an average of 4 hours 11 minutes a day in front of a screen (school periods and vacations combined). This average time was higher for boys than for girls and increased with age. - Children aged 6-10 spent an average of 3 hours 07 minutes a day in front of a screen (without distinction by gender); - Children aged 11-14 spent an average of 4 hours 47 minutes a day in front of a screen (without significant distinction by gender); - Teenagers aged 15-17 spent an average of 5 hours 23 minutes a day in front of a screen (4h44 for girls and 6h15 for boys). Daily screen time is highest among children from the least educated households and decreases as the level of education of the household's reference adult increases.

These results highlight still low levels of physical activity and a high level of sedentariness. From a public health perspective, it therefore appears necessary to intervene jointly to increase the population's level of physical activity and limit the time spent in sedentary behaviors.

3.4 Longitudinal studies: EDEN-N and ELFE cohorts

Preamble

As for the effects of exposure to screens, this issue is particularly well publicized in the media (press, books, etc.), as in Michel Demurget's book “La fabrique du crétin digital”, with statements that are not always scientifically founded. The difficulty with the question of exposure to screens and what this exposure produces on children's cognitive and socio-emotional development is that it's hard to establish causal links, despite what some doctors, such as those who are part of the Collectif de Overxposition aux Ecrans (COSE [ ]), may claim. When it comes to screens, we need to be discerning in our analysis of correlations. The observation of an increase in language disorders, psychological disorders and intellectual and cognitive disorders cannot be explained on the basis of simple correlations with the use of screens. It is necessary to establish causal links, which remain difficult to establish today. To date, there are no convincing data in this respect. When most studies show links of association such as “screen time has an effect on the cognitive development of young people”, it could just as easily mean that “the cognitive development of children produces vulnerability factors and risk factors for greater screen use”.

To understand the effect of digital technology is to understand that it is the effect of digital technology on a growing brain (Gogtay et al., 2004, [36]). This growth is much more prolonged than we might think, with moments of particular sensitivity to the environment that are not limited to early childhood. Cerebral plasticity, i.e. the effect of the environment and how it can produce changes in the brain, is extremely important during infancy (0-3 years). However, infancy is not the only period when the brain is highly sensitive to the environment. There's also a second period, that of adolescence, notably under the effect of pubertal hormones, during which the brain evolves and reconfigures itself until it reaches its adult structure (age 22-25). So to think that screens are more harmful during early childhood and much less so during adolescence is an untruth. Three dimensions need to be taken into account, and they show just how complex the question of the effect of digital technology on the brain is: cerebral growth is dependent on the environment, the brain develops well beyond the period of early childhood, and for a long time, this growth will not take place at the same pace in the different cerebral regions (postero-anterior axis). When we try to understand the effect of digital exposure, we need to consider not only what it produces at a given age, but also what it might produce over the long term in terms of cerebral development and growth.

That's why it's vital to have longitudinal studies to understand what time spent exposed to screens can produce on cognitive development, and in particular on a child's language development. Several longitudinal studies have been carried out in France.

EDEN-N cohort study

The EDEN-N study (1,413 children aged 2-5 to 6) shows that, rather than looking at overall screen exposure time, there are specific times of the day when it's important to limit exposure. In particular, these are times when families socialize (screen time, television during meals). Exposure then has an effect on language development, which is quite intuitive since language development requires time for oral exchange within the family, and therefore time to disconnect from screens.

ELFE cohort study

Another study[37] was carried out on children in the ELFE cohort (8030 children aged 2 to 5.5), which showed that at ages 3.5 and 5.5, exposure time was associated with poorer overall cognitive development. The study takes into account a large number of factors, including parental practices and social background, and shows that the link between exposure time and cognitive development becomes weak.

Meta-analyses of the link between television exposure time and children's language development show two things. On the one hand, overall screen time has a negative effect on children's language development (16%), but there is also a positive effect of the same magnitude in the case of co-viewing of audiovisual content by a child with an adult.

A meta-analysis on the link between screen time and cognitive development

The study by Madigan et al (2019, [38]), a meta-analysis of screen time in relation to cognitive development, is interesting for several reasons: the size of the sample (2,441 children), the nature of the research, which is longitudinal (follow-up of children over a relatively long period of time, from 24 to 60 months), and the method of analysis (hetero-evaluation, i.e. assessment by parents of both their children's time spent in front of screens and their cognitive development using a questionnaire). The study can be put into perspective with those carried out in France on the EDEN-N and ELFE cohorts and shows the value of longitudinal studies. In particular, the results show that those who spend more time on screens at 24 months are also those who spend more time at 36 and 60 months.

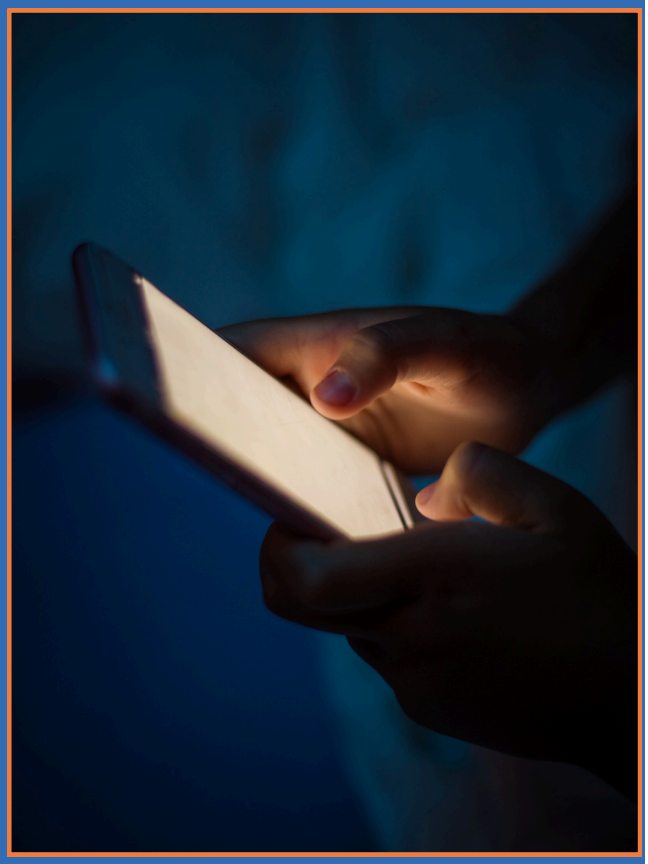
Similarly, the study shows that those who are the most cognitively advanced at 24 months continue to be so at 36 and 60 months. Intersecting these two dimensions, it is possible to show that children's screen time at 24, 36 months is related to parents' hetero-reported cognitive development at 36 and 60 months. Thus, screen time at 24 months does have a negative effect on cognitive development at 36 months.

Nevertheless, beyond the negative effect, it's essential to know the size of the effect, which ultimately appears moderate. Deciding to ban screens up to 60 months certainly requires more hindsight and studies to guide public policy.

Conclusion

All these studies show that we need to move away from a simple approach to screen time to a more complex one that deals with the quality of content and the social interactions that can exist around audiovisual content. In terms of recommendations, the conclusion will certainly not be “no screen time for young people”, but rather “no independent screen time for young people”. In the same way, when we try to understand the effect of exposure to screens, we need to be able to rely on longitudinal studies to be able to follow children and adolescents over relatively long periods. The brain evolves well beyond infancy and into adulthood; cognitive development is less cumulative (growth, stagnation, regression, etc.) than it appears, and is therefore not linear. What we do know at this stage is that there is a link between screen exposure time and brain structure, since the brain is plastic and reconfigures itself over time, and that exposure time influences cognitive skills and language development, especially when exposure is early. However, we are not yet able to understand the cross-correlation between these variables.

4.Other recent studies in France



4.Other recent studies in France

Among the main studies carried out in France in recent years, we can highlight the following:

- A study conducted by the SANPSY laboratory[39] at the University of Bordeaux on the addictive nature of screens (published in the journal JMIR in 2022).
- A report by the commission of experts[40] commissioned by the President of the Republic and published on April 30, 2024, which deals with exposure to screens (all types combined);
- A study[41] carried out by a joint team from several research laboratories, who published their results in 2024. The researchers worked on the ELFE cohort, the first nationwide longitudinal study of child development in France.

4.1 What is actually meant by "screen addiction"?

Whatever its purpose, addiction is defined as the loss of control over an object that was originally a source of gratification for the user.

It is a chronic, incapacitating disease, a source of distress, characterized by an accumulation of damage for the sufferer, and relapse when attempts are made to reduce or stop use. The main predictor of relapse is “craving”, i.e. a persistent, involuntary urge to use. Craving is triggered by stimuli (“cues”, either personal and/or standard), and is a particularly intrusive and destabilizing experience that drives people to use.

These fundamental points of addictology enable us to make an essential distinction between three modalities of use: unproblematic use, problematic use (i.e. with damage of various kinds, but without lasting loss of control) and, finally, addictive use (illness with loss of control, craving and relapse).

Adolescent smartphone addiction is a complex problem that requires a multidimensional approach.

Screen addiction is characterized by a set of compulsive behaviors linked to the excessive use of digital devices (smartphones, tablets, computers, games consoles, television) to the detriment of other essential activities.

Let's start by pointing out that screen addiction is not currently a recognized medical diagnosis. This does not prejudge the fact that such an addiction may exist, but simply that in the current state of scientific knowledge, it has yet to be established on the basis of rigorous studies.

Although the World Health Organization (WHO) officially recognized only video game disorder as a behavioral addiction in the International Classification of Diseases[42] (ICD-11) in 2018, the broader phenomenon of screen addiction is receiving increasing attention in the scientific community. This addiction manifests itself in an excessive preoccupation with digital activities, a loss of control over usage time, withdrawal symptoms when unable to access screens, and continued use despite the negative consequences on daily life, social relationships, and physical and psychological health.

Adolescent smartphone addiction is a complex problem that requires a multidimensional approach (Billieux & Van der Linden, 2012, [43]). Interventions need to be tailored to specific addiction profiles, strengthen family relationships, promote mindfulness and encourage alternative activities (Li et al., 2023, [44]). By recognizing the potential impact of educational smartphone use and developing adolescents' self-control, it is possible to transform this tool into a positive resource rather than a source of addiction. Further longitudinal research is needed to better understand causal relationships and assess the effectiveness of different intervention strategies. In addition, it is crucial to take into account the criticisms of the concept of addiction and adopt more precise and nuanced terminology to describe this phenomenon (Panova & Carbonell, 2018, [45]). An integrative approach, taking into account individual, family, social and cultural factors, is essential to prevent and treat smartphone addiction in adolescents.

4.2 SANPSY research center study

To collect the data, an anonymous questionnaire was administered to analyze screen use over the past 12 months (401 participants out of 1,200 questionnaires distributed, including 300 adolescents and adults aged 11 to 84 retained for analysis). In the DSM-5 nomenclature, addiction is diagnosed regardless of its purpose by applying a common core of criteria, with certain adjustments for non-substance behavioral addictions (gambling, video games).

In terms of methodology, the authors of the study adapted the DSM-5 criteria to study screen addiction. This was established as persistent and repeated use of screens (TV, computer, smartphone, tablet, video game console) leading to impaired functioning or clinically significant distress. For a disorder to be medically classified as “screen addiction”, the person concerned must meet at least five of the nine criteria (loss of interest, loss of control, relief of negative mood, etc.). In this case, the first important finding was that such addiction is relatively rare among the teenagers and adults in the sample: 1.7% of the 300 participants. Lowering the threshold to four criteria did not bring about any noticeable change.

Another important finding is that 44.7% of people have at least one of the nine criteria. In other words, the proportion of people experiencing various problems linked to their use of screens is significantly higher than that of people whose practice could be qualified as “addiction” in the medical sense. Taking age and gender into account, the participants concerned were significantly more likely to cite the computer as their main screen, and video games, social networks and communicating, following the news and searching for information as their main activities.

This significant difference in prevalence could make the “addiction” group difficult to distinguish specifically from “users with problems, but no addiction” for the public, thus sustaining the “all screen addicts” misunderstanding.

4.3 Report of the commission of experts

In mid-January 2024, the President of the Republic wanted to install a Commission made up of experts from "civil society" to assess the issues attached to children's exposure to screens and make recommendations. More specifically, the objective assigned to the commission was to determine the proper use of screens for young people, both at home and in the classroom. Nearly 150 young people were interviewed, and over a hundred experts and professionals were heard, with the aim of covering as many aspects as possible of children's and teenagers' relationship with screens and digital technology.

The commission's report was made public on April 30, and is subtitled "In search of lost time", to highlight both the time spent in front of screens and the time literally lost for human interaction, which is decisive for children and adults learning to live.

At the end of its three-month work, the Commission, co-chaired by neurologist Servane Mouton and addictologist psychiatrist Amine Benyamina, drew up a set of findings summarized below:

At the end of its three-month work, the Commission, co-chaired by neurologist Servane Mouton and addictologist psychiatrist Amine Benyamina, drew up a set of findings summarized below:

- Children, like their parents, live in a world where screens and digital technology play a major role. Children are widely exposed to screens (an average of 10 screens per household!), and at ever younger ages, whether at home, at school, in the public space, or on the equipment available to them for their own use;

- A clear scientific consensus is emerging on the harmful consequences of screens on several aspects of the somatic health of children and adolescents. In particular, the use of screens contributes, directly or indirectly, according to a dose-effect relationship, to the resulting deficits in chronic pathologies, as well as to eyesight problems (development of myopia and possible risks for the retina linked to exposure to blue light[46]). Questions, as yet unresolved by science, about the effects of exposure to electromagnetic waves, and the possible impact of exposure to substances present in digital terminals and recognized as endocrine disruptors, call for caution at this stage, particularly in periods of high vulnerability such as pregnancy;

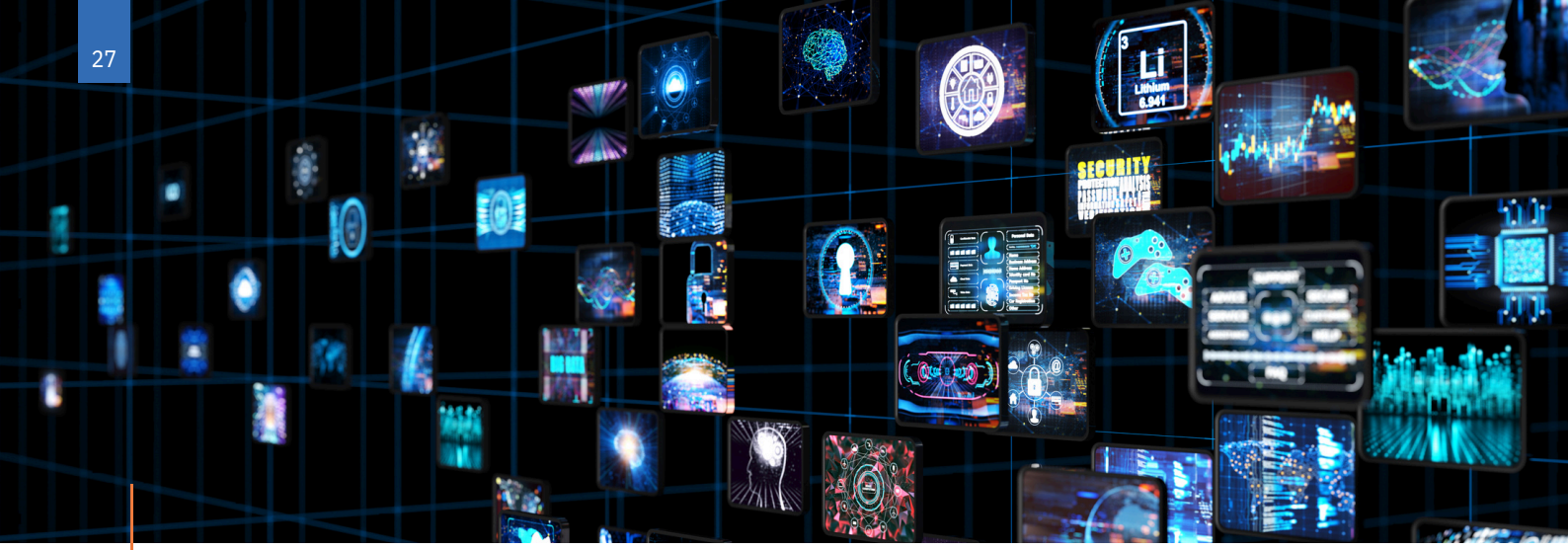
- Studies on the impact of screens on the neurodevelopment of children and teenagers still require further investigation; and while recognizing the difficulties associated with the conditions of these studies for establishing causal links, and the importance of other environmental factors, the data encourage us to move towards regulating usage. In particular, the Commission wishes to call for great vigilance, at the very least up to the child's 4th birthday, in the use made of tools in their presence by parents, but also more generally by professionals involved with early childhood: mechanically, this “techno- conference” which affects the quantity and quality of interactions with the child can alter, in cascade, socio-emotional capacities and language development. Adolescence is also a vulnerable period in terms of psycho-behavior and the risk behaviors that can be associated with abusive use of social networks, for example;

Excessive smartphone use can impair adolescents' social skills, leading to difficulties in interpersonal relationships.

- The notion of “screen addiction” as such is not yet recognized by science, but “screens”, and in particular the use of social networks, appear to be, over and above the benefits they can bring, additional risk factors when there is a pre-existing vulnerability in a child or adolescent, particularly in terms of depression or anxiety (Kim et al., 2019; Primadiana et al., 2019). Against a backdrop of massive diffusion of digital uses, and a strong weakening in recent years of the mental well-being of adolescents, particularly young girls, research must progress to enlighten decision-makers, but insights are expected now on the potentially deleterious effects of uses that can be made of digital services;

- Children's uncontrolled access to screens and inadequate regulation of the content to which minors may be exposed, in terms of pornography and extreme violence for example, pose a high risk to their equilibrium, and sometimes even their safety, all the more so if there is little dialogue with adults. More broadly, they raise societal issues, such as the massive dissemination of certain stereotypes or deleterious representations of relations between men and women, sexuality and “living together”. The risks of confinement caused by algorithmic bubbles need to be given greater consideration, and deleterious representations deconstructed. The dangers of pedo-crime have never been so high, and are present in all digital spaces where minors can be found (video games, forums and messaging systems in particular).

- Excessive smartphone use can impair adolescents' social skills, leading to difficulties in interpersonal relationships (Supriatno & Romadhon, 2017; Rahmadani & Widiastuti, 2018). Adolescents may become less inclined to participate in face-to-face social activities, preferring online interactions (Xiao et al., 2019). This preference can lead to a decrease in the quality of social relationships and an increased sense of loneliness.



4.4 Study on exposure to screens and child development

To what extent does early or excessive exposure to screens influence children's cognitive development? This question currently divides scientists. A research team led by Inserm researcher Jonathan Bernard at the Centre de recherche en épidémiologie et statistiques (Inserm/INRAE/Université Paris Cité/Université Sorbonne Paris Nord) has been working on data from almost 14,000 children in the French ELFE cohort, from age 2 to age 5 and a half. ELFE is the first nationwide longitudinal study in France to track children from birth to adulthood. From the first contact with families at the maternity hospital, participating parents are regularly interviewed to better understand how the environment, family environment and living conditions influence children's development, health and socialization. The study sought to assess the associations between screen use and cognitive development in early childhood, considering factors linked to the social, perinatal and family contexts, as well as lifestyle habits.

While, like others before it, this new study shows a negative relationship between exposure time and development, it also highlights that this relationship is not true for all areas of cognition, and that it is much weaker when the family environment is properly taken into account. Its results also confirm a non-negligible negative relationship between exposure to television during family meals and early language development. The study results also show that, irrespective of exposure time, having the TV on during family meals at age 2 (which concerned 41% of children) was associated with poorer language development scores at the same age. These children also showed poorer overall cognitive development at the age of 3 and a half. This could be explained by the fact that television, by capturing the attention of family members, interferes with the quality and quantity of interaction between parents and child.

At this age, interaction is crucial for language acquisition. What's more, television adds a sound background which, when superimposed on family discussions, makes it difficult for the child to decipher sounds, and limits verbal comprehension and expression.

This work, published in The Journal of Child Psychology and Psychiatry, suggests that screen time is not the only factor to be taken into account: the context in which screen use takes place could also be an important factor. The authors call for more long-term studies to assess the cumulative impact of these effects from early childhood to adolescence.

Conclusion

The report “Children and screens: in search of lost time” stresses that time is not necessarily the best variable for understanding the problematic effect of screens. This result is also confirmed by the various studies included in our work.

According to the same report, there is a clear consensus on the direct and indirect negative effects of screens.

The two areas where we have relatively robust evidence are sleep and sedentary lifestyles. We can affirm that screens influence sleep. In teenagers, it's generally when you use screens in the hour before bedtime. As sleep is important for brain development, exposure to screens becomes problematic. Screens have a negative effect on sleep quality, which in turn can have a negative impact on cognitive development. Sleep deprivation can be explained not only by exposure, but also by other contextual factors (for example, the start time of secondary school classes, which may not be adapted to the physiological sleep rhythm of teenagers). The impact of screens on sleep, sedentary lifestyles, lack of physical activity and the risk of overweight or obesity (with the ensuing cascade of pathologies).

However, questions about other suspected or possible effects of screen-related technologies on health remain unanswered at this stage, prompting caution and further research. According to the report, several preconceived ideas, such as that screens can cause learning and attention disorders, need to be verified.

Our work has shown that most studies on the impact of screens have so far focused on correlations between, on the one hand, their content and the time spent using them, and on the other, the behavior of their users, particularly in terms of aggression, desensitization to violence and attention disorders, while questioning possible cause-and-effect relationships.

Neurodevelopmental disorders have a particularity: as the brain begins to develop in utero (even before birth), neurodevelopmental disorders cannot be caused solely by exposure to screens. This does not mean that screens can amplify certain mechanisms or create vulnerability factors. If you have an attention deficit disorder, you may be vulnerable to consuming more screens, but that doesn't mean that it's the consumption of screens that will produce this neurodevelopmental disorder. Similarly, the idea that social networking is the cause of depressive symptoms in young people is erroneous and cannot be supported by any data. Depression is multifactorial. Finally, the idea that screen use can lead to addiction needs to be clarified. Addiction cannot be caused by the object (screen) itself, and the medical community considers that there is no such thing as screen addiction. This doesn't mean that it won't be true in a few years' time, but today we need to work on the question of screen use outside the concept of addiction. We can't talk about screen addiction the way we talk about drug addiction. The study carried out by the SANPSY laboratory at Bordeaux University (2022) concludes that such addiction is rare (1.7% in their study). Rather, we should be talking about abusive use. Nevertheless, there are principles used by a number of algorithms that prove addictive by creating mechanics of engagement.

Alongside indicators linked to time spent and media content, it seems increasingly essential to take into account many other factors likely to influence their impact. These include, but are not limited to

- interaction characteristics (being passive, as in films, or active, as in video games or social networks, but also the impact of virtual reality);
- the context of use (at school, at home, but also for homework or leisure);
- user characteristics (a child with ADHD will not play the same video game title in the same way as a child without ADHD);
- the learning situation (formal or informal, at home or in the classroom, with a device adapted to learning or not);
- the environment, and in particular the structure of the family environment.

> ***Addiction cannot be caused by the object (screen) itself, and the medical community considers that there is no such thing as screen addiction.***

5.Conclusion and further thoughts on preventive measures

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5.1 General conclusion

Screens play an important role in everyone's life, especially children's. Digital technology has taken on a growing and irreversible importance in education and culture, and more generally in the life of our society. Huge economic and commercial interests are at stake. Over the years, however, it has become clear that these developments have also had deleterious effects, which are a source of great concern, so that the rapid growth in the presence of screens in our lives and those of our children is prompting everyone to question both the uses they make of them and the time they spend on them. That's why the three academies (Académie nationale de médecine, Académie des sciences, Académie des technologies) have decided to take stock of these issues, in the form of an “appeal” rather than a conventionally structured “report”.[47]

One of the main questions that arises is whether excessive use of screens can lead to genuine behavioral addiction. This notion must be approached with caution, as it corresponds to a precise medical definition, reserved for particularly serious pathologies. Moreover, these characterized behavioral addictions are often associated with comorbid psychiatric disorders such as depression, anxiety, phobias or personality disorders. Understanding this issue in children and adolescents is complicated by the diversity of psychological contexts and individual situations.

We generally underestimate the role of social vulnerabilities, which play a major role in our relationship with screens. Indeed, not all children and teenagers are placed in equivalent family, cultural and social contexts, and the consequences of screen misuse appear all the more serious when the child is in a vulnerable situation: the absence or insecurity of employment, the family's material difficulties, too great a distance from educational, social or medical services, an impoverished cultural context, are all factors that can make it difficult, or even inaccessible, to understand the digital world, to educate about screen use, to develop critical distance and the indispensable self-regulation.

Some young children (under the age of 3) are overexposed to screens, and the amount of time they spend on them is truly excessive. From recreational to utilitarian use, the focus is shifting to exclusively “calming” use, suggested and maintained by parents. Fascinated by noise and bright lights, totally passive, the very young child may already appear to be the victim of a behavioral disorder: overexposure in the child "glued" to the screen, and angry reactions when withdrawn.

The question is raised as to the impact of this behavior on the psychomotor and relational development of young children, as well as on their learning capacities. Irrespective of the answer to this very worrying question, it is difficult to distinguish between the possible intrinsic harmfulness of screens for young children, on the one hand, and inappropriate parenting practices, on the other, of which managing screens is just one aspect. The aim is not simply to limit access to screens - except, to a large extent, in the case of the youngest children - but to ensure that they are used in a reasonable and reasoned way.

For older children, and especially teenagers, the problem is as much one of content as of quantity. In particular, easy access to violent or pornographic scenes is a danger.

Social networks open up new possibilities for communication and help to combat loneliness. As such, they can be seen as positive. At the same time, they are a source of concern for teenagers, particularly because of the risks of communication disinhibition and harassment facilitated by the possibility of anonymity.

This is exacerbated by network strategies aimed at capturing users' attention and extracting ever more information from them to feed into databases. Video games are another cause for concern, widely publicized in the media. The violence conveyed by some of them raises questions, as does the absence of an absolute boundary between casino games and certain video games, especially as some publishers, using the services of psychologists and neuroscience specialists, introduce processes derived from games of chance and gambling.

In extreme cases, however, addiction to video games may be triggered by a combination of personal or social vulnerability and the particularly addictive nature of certain games. It should be borne in mind, however, that most gamers find this distraction a source of positive satisfaction and performance enhancement.

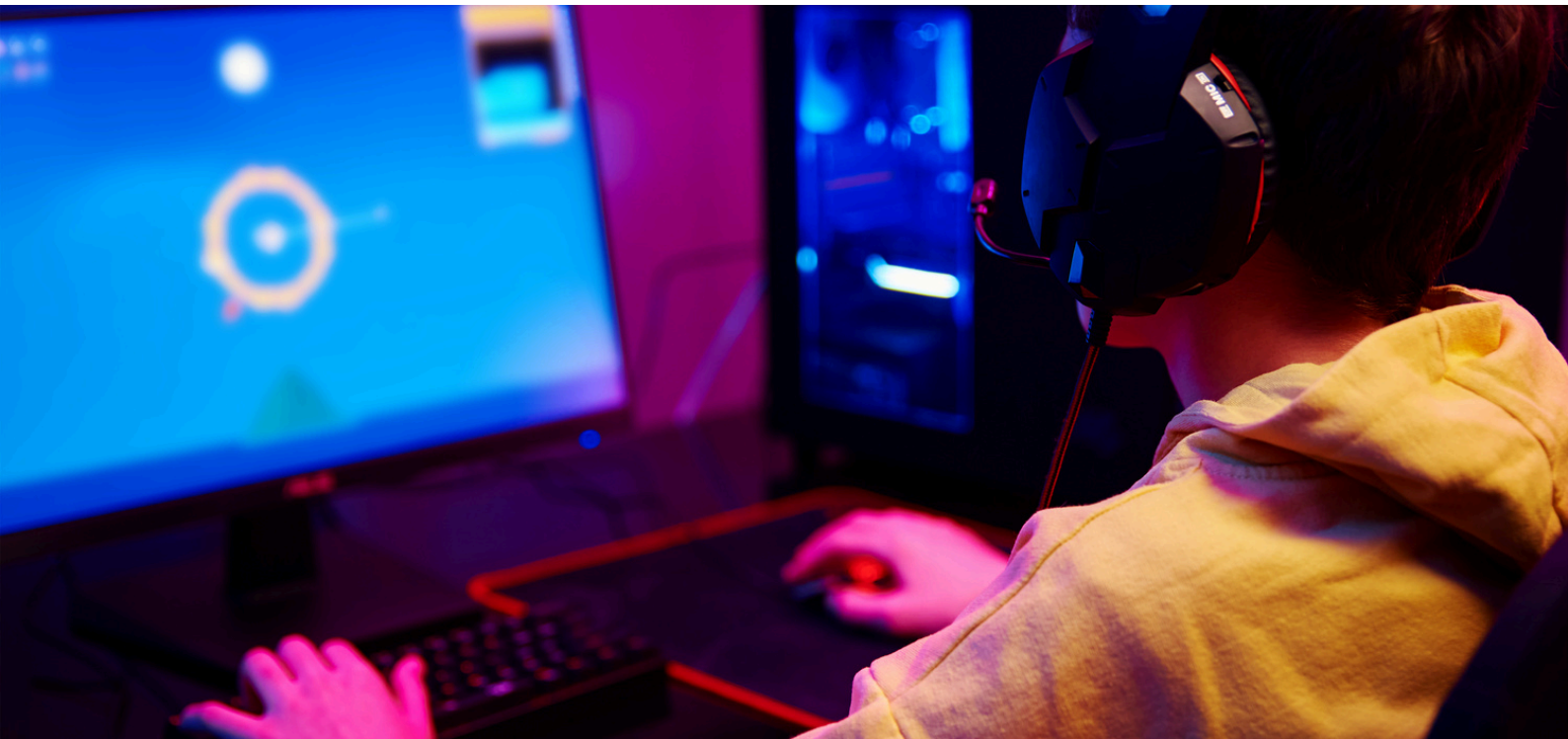
From a strictly medical point of view, the negative effects of screen misuse concern all ages, but are obviously more deleterious for children and teenagers. These problems are mainly linked to the consequences of evening or night-time use of screens, whose light, particularly the blue component, increases alertness by inhibiting the secretion of melatonin, the key hormone for falling asleep. The resulting sleep disorders can lead to fatigue and attention problems and affect school performance and social life. Here again, the role of parents is crucial. On the other hand, the possible toxicity for the retina of light diffused by screens must be taken into consideration. This is the subject of major studies, but no significant conclusions have yet been reached.

All the risks we have just mentioned must not obscure the fact that, when used properly, screens and the information they enable to be exchanged are undeniably useful tools for learning and opening up to the world. It's important to remember that the role of parents, both as role models and as educational authorities, remains crucial to the proper use of screens and the development of children. Regarding teenagers, we also need to remind them of the role of teachers in ensuring proper use and in educating them to discern the information they receive.

That's why alarmist campaigns focusing indiscriminately on the "dangers of screens" not only run the risk of making parents and educators ignore the potential benefits of digital technologies, widely argued to date. They also risk obscuring the real determinants of mental health and the importance of social problems. The divide between those who are prepared to benefit from the advantages of digital technology and those for whom it may exacerbate pre-existing difficulties is today as much a problem of social justice as of public health.

Digital convergence has already brought cinema, radio, television and telephony closer together by imposing a common technological support. Very soon, new forms of interaction will join them, using artificial intelligence in many as yet unpredictable ways. A positive attitude of vigilance must be maintained in the face of these developments.

The divide between those who are prepared to benefit from the advantages of digital technology and those for whom it may exacerbate pre-existing difficulties is today as much a problem of social justice as of public health



5.2 Preventive measures

The "children and screens" report drawn up by the commission of experts at the request of the President of the French Republic makes a number of recommendations. In view of the summary of the work carried out by this group of experts, and confirmed by the other studies in our work, it seems justified to reinforce the current recommendation not to expose children under 3 years of age to screens, and to advise against their use up to the age of 6, or at least that it be strongly limited, occasional, with content of educational quality, and accompanied by an adult. After the age of 6, the report suggests that moderate, controlled exposure should take its rightful place among activities that should be diversified and varied for the development of children and adolescents.

The Commission also considers that it would be inappropriate for children to have a cell phone before the age of 11, i.e. when they start secondary school; that from the age of 11, if they have a phone, it should not be used to connect to the Internet; from the age of 13, if they have a connected phone, it should not be used to access social networks or illegal content; from the age of 15, the symbolic age of digital majority, access to social networks should be limited to those with an ethical conception.

As parents, we need to use our screens less in front of our children, for whom we are the first example.

15.

The recommendations of the "Children and Screens" report are backed up by the results of the MILDECA / Harris Interactive 2024 Barometer[48] on screen use and related issues, which reveals a strong demand for screen regulation to benefit the very young:

- 9 out of 10 French people are in favor of banning the use of screens, whether in public places for young children (90%) or in nursery schools (88%).
- 69% of French people would be willing to forego the purchase of a telephone before the age of 13, a consensus shared by all, regardless of whether their children are concerned or not.
- 84% of French people would forego the purchase of a cell phone with or without Internet access for a child before the age of 11, with more than one in two "quite prepared".
- 75% of French people would like to see the use of mobile phones severely restricted in secondary schools & 73% are in favor of banning social networking for children under the age of 15.

Research into screens and their impact on child development is the subject of much debate among scientists. They do, however, agree on these key points.

No screens before the age of three.

This recommendation by Arcom, the former CSA, is unanimously endorsed by our experts, to limit children's sedentary lifestyle and the impact on their sleep, and even on their visual and cognitive development.

- After the age of 3, around screens, exchange and discuss to encourage language acquisition.
- No screens in the morning, so as not to diminish children's attention span before school. No screens in the evening, to avoid disrupting melatonin secretion before bedtime. And if possible, no screens during many other special moments to share!
- And finally (and above all!), as parents, we need to use our screens less in front of our children, for whom we are the first example.

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TECHWELL

TechWell is an Erasmus+ Project that aims to struggle with technology addiction.

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