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ICT Kids Online Brazil

SURVEY ON INTERNET USE BY CHILDREN IN BRAZIL

2025

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Brazilian Network Information Center

ICT Kids Online Brazil

SURVEY ON INTERNET USE BY CHILDREN IN BRAZIL

2025

Brazilian Internet Steering Committee
www.cgi.br

São Paulo
2026

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Foreword

The Internet is a network built over decades through collective effort. It has established itself as an essential infrastructure for contemporary society, enabling economic activities, public policies, fundamental services, and various forms of social interaction. More than just offering a set of applications and services visible to end users, the Internet operates on an open, neutral, interoperable, and distributed technical architecture, whose integrity is a prerequisite for innovation, inclusion, and the exercise of rights in the digital environment.

Following the guiding principles of the Internet and in constant interaction with the Brazilian Internet Steering Committee (CGI.br), the Brazilian Network Information Center (NIC.br) plays its role in coordinating and strengthening the Internet in Brazil. In 2025, 20 years after its reconfiguration as a legal entity, NIC.br reaffirmed its commitment to managing critical network resources, operating stable infrastructure, and promoting a secure, accessible, and high-quality digital environment for Brazilians. This institutional milestone occurred in an equally significant context, alongside the celebration of the 30th anniversary of CGI.br—internationally recognized as a successful experiment in multistakeholder Internet governance.

One of NIC.br's various areas of activity focused on digital security is the Brazilian National Computer Emergency Response Team (CERT.br), which has played a central role in coordinating incident responses, disseminating best practices, and strengthening technical capabilities for online security, contributing to the resilience of the country's Internet infrastructure. These actions are linked to the publication of extensive awareness-raising and training material, always reinforcing the importance of a preventive and collaborative approach to security in the digital environment.[1]

Promoting a more accessible and inclusive Internet is also part of NIC.br's agenda. The Web Technologies Study Center (Ceweb.br) plays a role in this area, developing initiatives focused on digital accessibility and the standardization of web technologies.[2]

[1] More information about these actions can be found at https://internetsegura.br/

[2] Among the initiatives related to technical standards, Ceweb.br|NIC.br was part of the committee that drafted the ABNT NBR 17225 standard, focused on accessibility requirements for web content and applications. More information at https://ceweb.br/projetos/norma-abnt/

In a more technical field, the Center of Study and Research in Network Technology and Operations (Ceptro.br) works to continuously improve Brazil's Internet infrastructure through initiatives to measure connection quality, disseminate best practices for network protocols, train professionals, and provide services essential to Internet operations.[3] It was also through the actions of Ceptro.br|NIC.br that the Brazil Internet Exchange (IX.br)[4] originated and operates. It currently reaches more than 40 Tbit/s of aggregate traffic in the 38 locations where it is present, being the largest set of Internet exchange points (IXPs) in the world, with approximately 3,900 participating Autonomous Systems (AS). It should be noted that the São Paulo point is currently the world's leading IXP.

Adding to NIC.br's efforts is the creation of the Brazilian Artificial Intelligence Observatory (OBIA). It provides data and indicators that broaden understanding of the impacts and challenges of Artificial Intelligence (AI) in the country, supporting public debate and the formulation of policies aimed at its responsible use.[5]

Throughout its activities, NIC.br maintains and supports initiatives to promote the Internet and its safe, responsible, and conscious use. Annual events such as Safe Internet Day,[6] the Seminar on Privacy and Personal Data Protection,[7] and the Symposium on Children and Youth on the Internet[8] represent the ongoing effort to coordinate technical, legal, and social debates on key issues on the digital agenda. These actions highlight the importance of protecting personal data, ensuring information integrity, and safeguarding rights in the digital environment, especially for children.

In this context, the Regional Center for Studies on the Development of the Information Society (Cetic.br) is the NIC.br department responsible for regularly producing indicators and analyses on access, use, and appropriation of information and communication technologies (ICT) in Brazil. Cetic.br|NIC.br has established itself as a national and international reference in the production of reliable, comparable data aligned with internationally recognized methodological standards, which support the formulation of public policies, academic research, and multisectoral debate on the development of digital technologies.

In 2025, Cetic.br|NIC.br expanded its participation in international forums and agendas, contributing empirical evidence and methodological expertise to debates within the scope of BRICS and the Southern Common Market (Mercosur) meetings,[9] as well as other multilateral spaces. In these instances, topics such as meaningful connectivity, AI adoption, and reducing inequalities in access to and use of digital technologies took center stage, underscoring the importance of comparable, context-specific indicators to guide both regional and international cooperation.

[3] The main projects and initiatives of Ceptro.br|NIC.br can be accessed at https://ceptro.br/#projetos

[4] More information at https://ix.br/

[5] More information at https://obia.nic.br/

[6] More information at https://www.diadainternetsegura.org.br/

[7] More information at https://seminarioprivacidade.cgi.br/

[8] More information at https://criancaseadolescentesnainternet.nic.br/

[9] Publications with BRICS and Mercosur, among other international organizations, can be accessed at https://cetic.br/pt/publicacoes/indice/outros/

This year, Cetic.br|NIC.br began new studies focused on strategic topics for the development of the Brazilian digital ecosystem, such as the analysis of data center infrastructure, which is now essential for data processing, storage, and sharing, as well as for the expansion of applications based on cloud computing and AI. Another strategic topic concerns information integrity, which is central to analyzing information flows and trust in data sources, as well as to addressing challenges associated with misinformation in the digital environment.

By swiftly addressing emerging and relevant topics such as connectivity quality, digital competencies, privacy, AI use, critical infrastructure, and security, Cetic.br|NIC.br's surveys help understand the multiple factors that enable effective, meaningful connectivity. Measuring access remains essential, but it is increasingly necessary to understand the conditions of use, associated risks, and capabilities required for individuals and organizations to fully benefit from digital technologies.

The financial resources generated by .br domain registrations, managed by Registro.br|NIC.br, enable continuous investment in research, security, training, and technological development, sustaining a virtuous cycle that benefits the Internet in Brazil. In a scenario of rapid technological change and growing dependence on digital infrastructure, the governance model adopted by the country since 1995 remains current and fundamental, supporting an open, secure Internet guided by the public interest.

The purpose of this publication is to contribute to the quality of public debate and strengthen the formulation, monitoring, and evaluation of evidence-based public policies. By gathering reliable data and consistent analyses, NIC.br and CGI.br reaffirm their commitment to multistakeholder governance, the promotion of rights, the reduction of inequalities, and the construction of a more inclusive, accessible, and secure digital environment, capable of responding to contemporary challenges and expanding opportunities for Brazilian society.

Enjoy your reading!

Demi Getschko
Brazilian Network Information Center – NIC.br

Presentation

The intensification of digital transformation has significantly expanded the role of the Internet as an essential infrastructure for exercising rights and accessing information, education, social participation, and knowledge production. The Internet is also a strategic tool for formulating, implementing, and evaluating public policies aimed at innovation and economic and social development. In a context of rapid technological change, the expansion of digital platforms, and the growing use of automated data-based systems, there are increasing challenges associated with organizing the digital ecosystem. Ensuring that this ecosystem reduces inequalities, protects rights, and serves the public interest and national sovereignty is an urgent task that requires participatory institutional arrangements capable of guaranteeing democratic governance.

It is in this context that the Brazilian Internet Steering Committee (CGI.br) operates. In 2025, it celebrated 30 years of defending an open, secure, and inclusive Internet. The Brazilian multistakeholder model of Internet governance has established itself as a legitimate space for dialogue and collective construction, bringing together the government, the private sector, civil society organizations, and technical and academic communities in the formulation of principles, recommendations, and guidelines that steer the development of the Internet in the country. This approach becomes even more relevant in light of the growing complexity of challenges associated with the digital environment, such as personal data protection, transparency and accountability of digital platforms, tackling disinformation, and the impact of the use of automated systems and Artificial Intelligence (AI) on fundamental rights.

Throughout 2025, CGI.br actively participated in key debates on the future of Internet governance in Brazil and around the world, with an emphasis on discussions and public consultations[1] related to the regulation of digital platforms and the protection of rights in the online environment. The Committee contributed to the formulation of principles and recommendations aimed at balancing technological innovation, the protection of freedom of expression, and the need to safeguard users, particularly groups in situations of greater vulnerability, such as children.

[1] One of the results of this debate was the publication, in 2025, of the *Princípios do CGI.br para Regulação de Plataformas de Redes Sociais* (CGI.br Principles for the Regulation of Social Networks), available in Portuguese at https://cgi.br/pagina/principios-cgibr-regulacao-redes-sociais/

The contributions of CGI.br to the debate on the Brazilian Digital Statute of the Child and Adolescent (ECA Digital),[2] enacted in 2025, were based on the understanding that the comprehensive protection of children in the digital environment must be accompanied by measures that preserve the open architecture of the Internet and avoid solutions that compromise fundamental rights. The recommendations on age verification, the responsibility of application providers, and the promotion of safer digital environments reflect the pursuit of proportionate, evidence-based solutions aligned with the principles of multistakeholder Internet governance.[3]

Within the scope of this activity, the 15th edition of the Brazilian Internet Governance Forum (FIB, as per its acronym in Portuguese) in 2025 reinforced CGI.br's role as a facilitator of plural and qualified debates on the digital environment. The FIB brought together representatives from different sectors to discuss topics such as platform regulation, information integrity, digital sustainability, and meaningful connectivity. More than just a space for debate, the event has established itself as an environment for listening, building consensus, and formulating proposals aligned with both the national context and international Internet governance agendas.

The work of CGI.br is inseparable from the production of quality data and empirical evidence that inform public debate and decision-making. The Regional Center for Studies on the Development of the Information Society (Cetic.br), a department of the Brazilian Network Information Center (NIC.br), plays a strategic role in providing fundamental data for the formulation, monitoring, and evaluation of public policies related to digital technologies. In 2025, upon completing 20 years of operation, Cetic.br|NIC.br reaffirmed its ability to respond quickly and competently to debates on the digital environment, systematically incorporating new topics and indicators into its research agenda.

An example of this responsiveness is the production of indicators and analyses widely used to monitor the implementation of public policies and regulatory frameworks, such as ECA Digital and Law No. 15.100/2025,[4] which provides for the use of personal devices by students in basic education facilities. Regular surveys by Cetic.br|NIC.br, such as ICT Kids Online Brazil and ICT in Education, produce data on the use of digital technologies by children and families, school mediation practices, and exposure to risks in the online environment. This data contributes to a deeper understanding of the challenges these young people face and is essential for evaluating the effectiveness of adopted policies and regulations, as well as guiding adjustments that protect rights without compromising access to or the positive use of digital technologies.

[2] Available at https://www.planalto.gov.br/ccivil_03/_ato2023-2026/2025/lei/L15211.htm

[3] CGI.br's recommendations regarding the ECA Digital can be found at https://cgi.br/media/docs/publicacoes/4/pt/20251118175422/CGIbr_Contribuicoes_Consulta_MJ_Afericao_Idade.pdf and https://cgi.br/media/docs/publicacoes/4/pt-br/20251215152052/Contribuicoes_CGIbr_Tomada_Subsidios_ANPD_ECA_Digital.pdf

[4] Available at https://www.planalto.gov.br/ccivil_03/_ato2023-2026/2025/lei/l15100.htm

By disseminating indicators and studies on meaningful connectivity, digital competencies, responsible use of technologies, information integrity, and protection of rights, among other topics, Cetic.br|NIC.br helps to provide a more comprehensive understanding of the effects of digital transformation on Brazilian society and to strengthen evidence-based public policies.

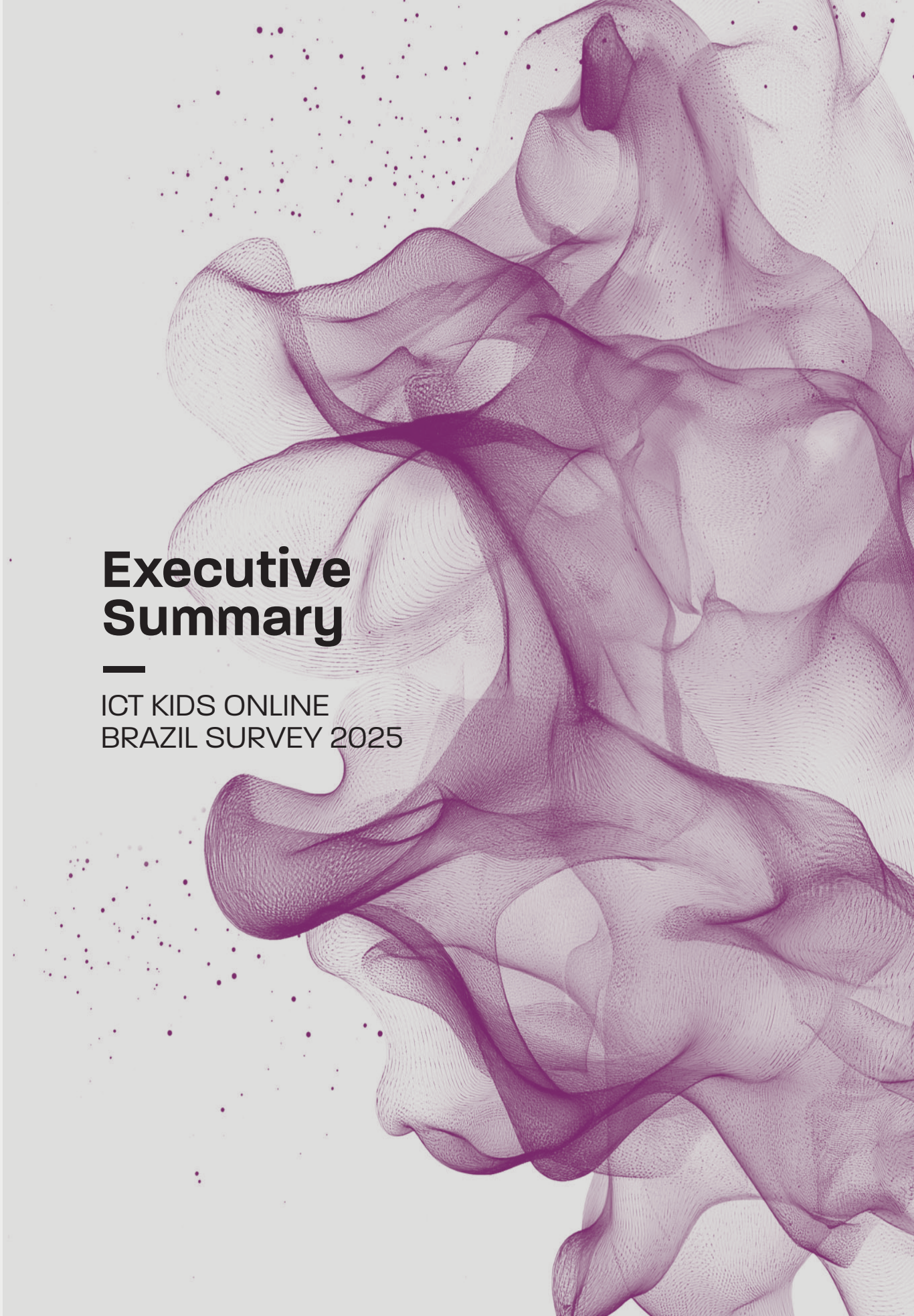
At the international level, in coordination with CGI.br and in cooperation with ministries, Cetic.br|NIC.br maintained active participation in multilateral and regional forums, such as the BRICS and the Southern Common Market (Mercosur) agendas, contributing to debates on digital governance, connectivity, inclusion, and sustainability. This action reinforces the importance of international collaboration and the production of comparable indicators to address common challenges, while respecting national and regional specificities. In the same vein, it is worth highlighting Brazil's commitment to multisectoral governance, evidenced by CGI.br's participation in the WSIS+20 renewal process.

In 2025, a sectoral study on data centers in Brazil was launched and conducted by Cetic.br|NIC.br with the support of a multisectoral group of experts and government agencies, including the Ministry of Science, Technology, and Innovation (MCTI), the Ministry of Development, Industry, Trade, and Services (MDIC), and the Ministry of Finance (MF). The study seeks to fill information gaps in a context where these infrastructures play an increasingly strategic role in the digital economy, development policies, technological sovereignty, and environmental challenges.[5]

Therefore, in a global environment marked by growing tensions, rapid technological advances, and disputes over regulatory models, CGI.br reaffirms the centrality of multistakeholder governance to strengthen a secure, open, and public-interest-oriented Internet. This publication showcases the efforts to gather reliable, robust public data produced within the scope of Cetic.br|NIC.br, which supports democratic debate, the formulation of public policies, and the construction of a more just, inclusive, and human-development-oriented digital environment.

Renata Vicentini Mielli
Brazilian Internet Steering Committee – CGI.br

[5] The initial results of this study can be accessed at https://cetic.br/pt/publicacao/ano-xvii-n-4-data-centers-no-brasil/



Executive Summary

ICT KIDS ONLINE
BRAZIL SURVEY 2025

Executive Summary
ICT Kids Online Brazil 2025

Since 2012, the ICT Kids Online Brazil survey has collected indicators that characterize the access to and use of information and communication technologies (ICT) by individuals 9 to 17 years old in Brazil. The survey also interviews fathers, mothers, or legal guardians about the perceptions and mediation of Internet use by their children or those under their guardianship.

In the 2025 edition, for the first time, the survey examined the frequency of Internet access by device and location, the use of generative Artificial Intelligence (AI) tools, and the types of videos consumed by children.

60% OF INTERNET USERS 9 TO 17 YEARS OLD ACCESSED THE INTERNET VIA THEIR TELEVISION ON A DAILY BASIS

Conditions of Internet access and use

In 2025, 92% of Brazilians 9 to 17 years old were Internet users, which amounts to approximately 24 million children. Between 2016 and 2025, growth was most significant among individuals in the DE socioeconomic class (87%, compared to 66% in 2016) and residents of rural areas (89%, compared to 65%).

In terms of age groups, more than 90% of individuals 11 to 12 years old (92%), 13 to 14 years old (94%), and 15 to 17 years old (95%) were Internet users in 2025. Among children 9 to 10 years old, growth accelerated during the COVID-19 pandemic: The percentage of users rose from 79% in 2019 to 92% in 2021, then declined to 87% in 2025.

In addition to the increase in the proportion of Internet users, the age at which children first went online has also decreased over the years. In 2025, 28% of respondents reported having gone online for the first time by the age of 6, while 25% did not specify their age at the time of their first online experience (Chart 1).

Although there has been an increase in the proportion of Internet users among the DE socioeconomic classes, inequalities in access conditions persist when compared to those observed in higher socioeconomic groups. In the 2025 edition, the ICT Kids Online Brazil survey examined the frequency of Internet access by device (Chart 2). Daily computer access varied by socioeconomic class: 32% in classes AB, 20% in class C, and 7% in classes DE. Televisions, on the other hand, were used daily by over two-thirds in classes AB (68%) and C (66%), and 49% in classes DE. Mobile phone use was widespread: among children 15 to 17 years old, it reached 98%, and 82% among those 9 to 10 years old, with no significant differences by socioeconomic class. Regarding locations of use, the household was the predominant setting for daily access (95%), followed by someone else's household (54%).

Internet access in schools has varied in recent years: 44% in 2023, 51% in 2024, and 37% in 2025. Among users who reported accessing the Internet at school, 12% did so several times a day, 13% at least once a day, and 9% at least once a week.

In 2025, ownership of mobile phones declined among younger children: 55% among users 9 to 10 years old (67% in 2024) and 69% among those 11 to 12 years old (79% in 2024).

Among children 13 to 17 years old, the proportion remained stable, with 78% of users 13 to 14 years old and 95% of those 15 to 17 years old owning a device.

Online practices

For the first time, the ICT Kids Online Brazil 2025 survey examined the creation and sharing of videos, songs, and images (33%), as well as the sharing of ideas and thoughts on the Internet (20%) by users 9 to 17 years old. In this edition, the survey also began to break down the different types of videos watched.

Among the videos surveyed, those featuring digital influencers and series, movies, or TV programs online were the most frequently viewed (80%). However, viewing several times a day is more common for influencer content (46%) than for series and movies (35%). Next are online tutorials, viewed by 74% of users; among them, 29% watch them several times a day. Finally, 52% watch videos of people playing videogame online, of whom 23% do so several times a day.

Use of social media increases with age: 33% of children 9 to 10 years old reported using social media in the past 12 months, proportion that rose to 63% among children 11 to 12 years old and 89% among those 13 to 14 and 15 to 17 years old. Historically, use by children 9 to 10 years old grew between 2019 (28%) and 2021 (48%), reflecting greater digital presence during the COVID-19 pandemic. However, between 2021 and 2025, there was a 15-percentage-point drop in use by children in this age group (48% to 33%).

Based on the evidence presented, the likelihood of using different digital platforms varies by age group (Chart 3). YouTube usage stands out among children 9 to 12 years old, followed by WhatsApp, whose reach increases starting at age 13. Short-form video platforms, such as Instagram and TikTok, gain relevance as users get older, while networks like Facebook and X (formerly Twitter) see a decline in usage. Among users, 66% have their own profiles on WhatsApp and Instagram, 57% on TikTok, and 50% on YouTube.

65% OF USERS 11 TO 17 YEARS OLD AGREED THAT TALKING ABOUT OR SEARCHING FOR A PRODUCT OR SERVICE ONLINE INCREASES THE AMOUNT OF ADVERTISING THEY RECEIVE ABOUT IT

Online risks

In 2025, 8% of Internet users 9 to 17 years old reported having been exposed to sexually explicit images or videos online. Among users 11 to 17 years old, 20% received messages or requests for sexual content. Of those, 11% said they had received messages with sexual content; 11% saw sexual content messages that were posted for others to see; 4% received requests to send nude photos or videos; and 2% were asked to talk about sex.

The survey also examined exposure to marketing content among users 11 to 17 years old: 55% had been exposed to advertising on social media, 52% on television, and 52% on video websites; 26% reported seeing advertising on gaming websites. Exposure to this content on social media was higher among children 15 to 17 years old (64%) than among users 11 to 12 years old (42%). In addition, 84% viewed content featuring product or brand promotion without it necessarily being identified as advertising, especially "unboxing" videos (66%), videos of people teaching how to use products (65%), and videos of people showcasing products given by brands (61%). The survey also identified, for the first time, exposure to advertisements of gambling games, reported by 53% of respondents. Exposure to product or brand promotion increases with age (Chart 4).

CHART 1

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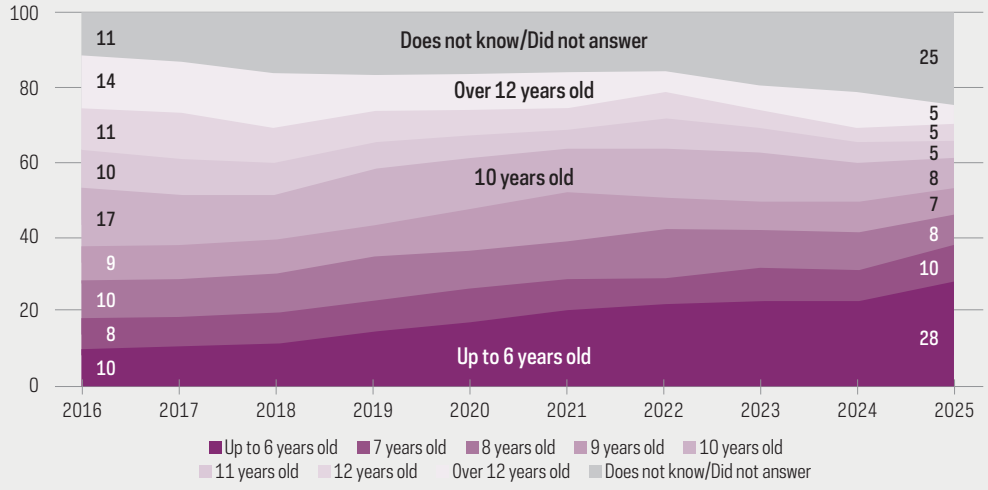
Age of first access to the Internet (2016–2025)

Total population 9 to 17 years old (%)



Of children 9 to 17 years old ...

81% looked up information on the Internet for schoolwork

70% researched topics of their interest

48% read or watched the news

31% looked up health information

CHART 2

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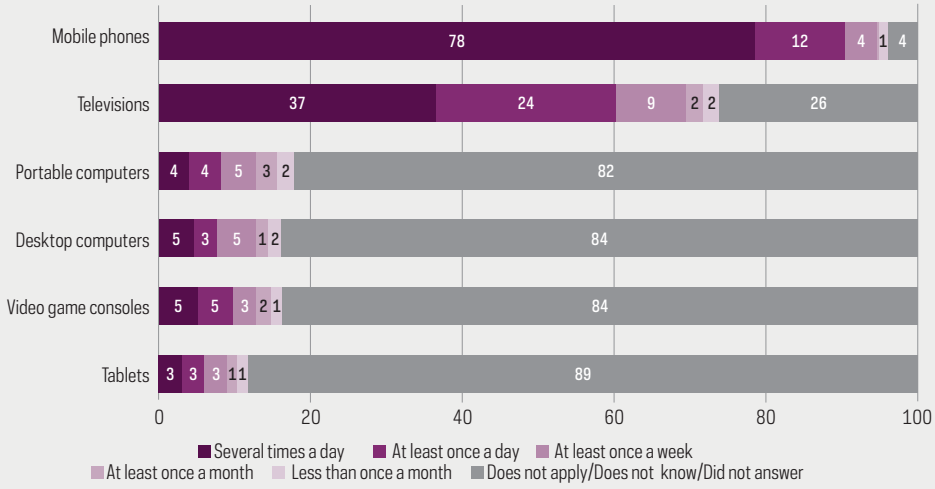
Frequency of Internet access, by device (2025)

Total number of Internet users 9 to 17 years old (%)



Mediation of Internet use

As reported by parents or legal guardians of Internet users 9 to 17 years old, 37% used technical measures to restrict who their children can contact, 34% to monitor the websites or apps accessed, and 33% to control which websites or apps can be downloaded.

As for sources of information on safe Internet use, half of the parents and legal guardians (50%) said they turn to their children themselves, the most frequently cited source, followed by family members and friends (48%). Traditional media (42%) and schools (41%) were mentioned by about two-fifths of the parents and legal guardians. Among online sources, 37% consulted specialized websites and 36% used videos or tutorials. Groups of parents on social media (31%) and Internet service providers (30%) were the next most-mentioned sources, while governments (25%), enterprises (21%), and civil society organizations (19%) were among the least frequently mentioned.

Survey methodology and access to data

The ICT Kids Online Brazil survey aims to understand how the population 9 to 17 years old uses the Internet and how they deal with the risks and opportunities arising from its use. The survey is based on the conceptual framework defined by the EU Kids Online network,[1] which considers the influence of individual, social, and country contexts on the use of the Internet by children. The data collection period was from March to August 2025. A total of 2,370 children and 2,370 parents or legal guardians were interviewed nationwide. Data was collected through face-to-face interviews using a structured questionnaire. The survey results, including tables of survey proportions, totals, and margins of error for the ICT Kids Online Brazil survey, are available at the Cetic.br|NIC.br website (https://cetic.br) and data visualization portal (https://data.cetic.br/). The "Methodological Report" and the "Data Collection Report" can be consulted in both the publication and on the website.

BOX 1

—

USE OF GENERATIVE AI

Given the potential benefits and risks of early use of generative AI tools, the ICT Kids Online Brazil survey provides new data on the use of these technologies among Internet users 9 to 17 years old in the country.

In 2025, 65% of respondents used generative AI for at least one of the purposes surveyed. Among them, 59% said they used generative AI tools for school research or studying, 42% for searching for information, and 21% for creating content such as texts, images, videos, or programming code. Beyond educational or creative purposes, 10% of users 9 to 17 years old reported using generative AI to talk about personal problems or their emotions.

As with other online activities, the use of these tools was higher among adolescents. Three-quarters of users 15 to 17 (75%) and 13 to 14 years old (75%) used generative AI for one of the purposes described above, compared to 62% of users 11 to 12 years old and 42% of those 9 to 10 years old.

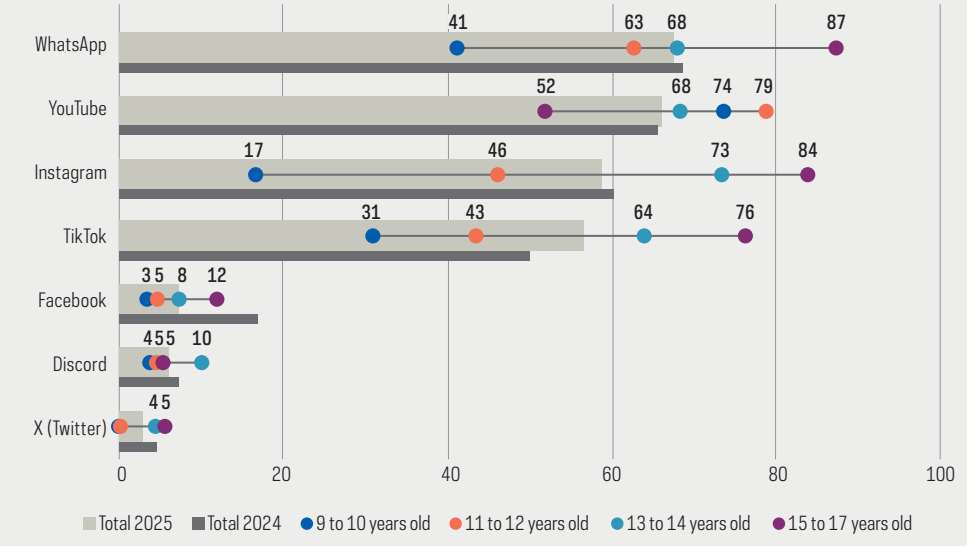
[1] The European network EU Kids Online originally developed the framework and is now part of the Global Kids Online initiative. For more information on the countries participating in the network, in addition to the results of each context, visit the project website: http://globalkidsonline.net/

CHART 3

—

Use of digital platforms, by age group (2024–2025)

Total number of Internet users 9 to 17 years old (%)



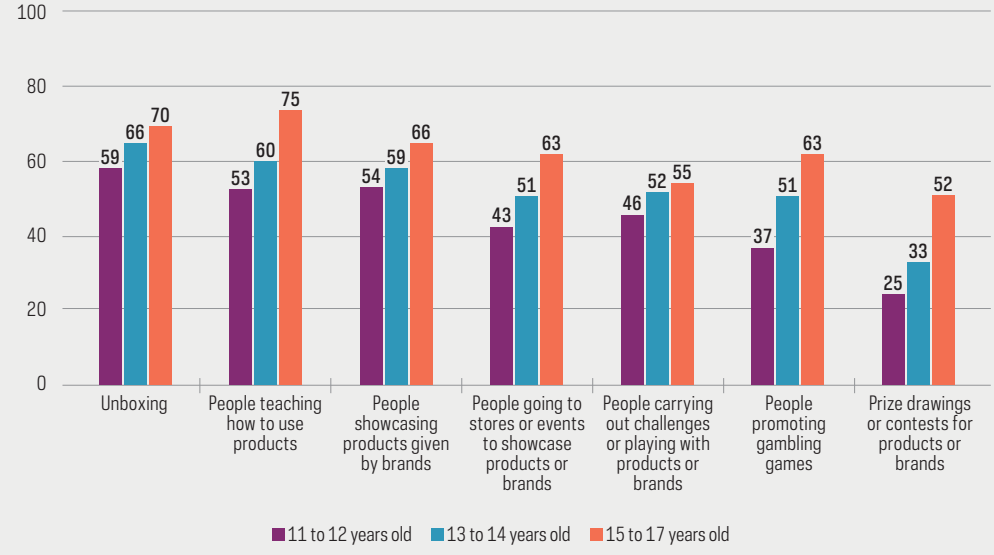
"Several times a day" or "Every day or almost every day"

CHART 4

—

Types of online advertising about products or brands seen, by age group (2025)

Total number of Internet users 11 to 17 years old (%)



Access the full survey data!

In addition to the results presented in this publication, tables of indicators, questionnaires, information on how to access the microdata, and the presentation of the results of the launch event are available on the Cetic.br|NIC.br website, as well as other publications on the topic of the survey.

The tables of results (https://cetic.br/en/pesquisa/kids-online/indicadores/), available for download in Portuguese, English, and Spanish, present the statistics produced, including information on the data collected and cross-referencing for the variables investigated in the study. The information available in the tables follows the example below:

Code and indicator name

Population to which the results refer

A4 - CHILDREN BY FREQUENCY OF INTERNET USE

Total number of Internet users 9 to 17 years old

PERCENTAGE (%)		MORE THAN ONCE A DAY	AT LEAST ONCE A DAY	AT LEAST ONCE A WEEK	AT LEAST ONCE A MONTH	LESS THAN ONCE A MONTH
TOTAL		84	12	3	1	1
AREA	Urban	85	11	2	1	1
	Rural	75	18	6	1	0
REGION	Southeast	86	10	2	0	1
	Northeast	83	12	3	1	1
	South	86	13	1	1	0
	North	76	16	5	1	1
	Center-West	87	11	1	0	1
SOCIAL CLASS	AB	87	10	2	0	0
	C	87	10	1	0	1
	DE	78	15	5	1	1

Indicator responses

Results tabulation cut-outs: total (population as a whole) and characteristics of analysis (region, age group, etc.), different in each survey

Results: can be in % or totals

Source: Brazilian Network Information Center. (2025). *Survey on Internet use by children in Brazil: ICT Kids Online Brazil 2025* [Tables].

How to reference the tables of indicators

This publication is also available in Portuguese on the Cetic.br|NIC.br website.

Methodological Report

ICT KIDS ONLINE
BRAZIL SURVEY 2025

Methodological Report
ICT Kids Online Brazil 2025

The Brazilian Internet Steering Committee (CGI.br), through the Regional Center for Studies on the Development of the Information Society (Cetic.br), a department of the Brazilian Network Information Center (NIC.br), presents the methodology of the Survey on Internet use by children in Brazil: ICT Kids Online Brazil.

The ICT Households survey incorporates, in its data collection process, the target population of the ICT Kids Online Brazil survey, which comprises those who are 9 to 17 years old. Thus, both surveys share the method for selecting respondents, described in detail in the "Sampling Plan" section. Although the data were collected jointly, the results of two surveys are released through specific reports for each audience.

Survey objective

The main objective of the ICT Kids Online Brazil survey is to understand how the population aged 9 to 17 years uses the Internet and how they deal with risks and opportunities related to its use.

The specific objectives are:

- to produce estimates on Internet access by children, as well as to investigate the profile of non-Internet users;
- to understand how children access and use the Internet and how they perceive the content accessed, as well as online risks and opportunities;
- to outline the experiences, concerns, and actions of parents and legal guardians regarding their children's use of the Internet.

The methodology of the survey is aligned with the conceptual framework developed by the academic network EU Kids Online (Livingstone et al., 2015), enabling the production of comparative studies on the theme.

Concepts and definitions

CENSUS ENUMERATION AREA

According to the Brazilian Institute of Geography and Statistics (IBGE) definition for the Population Census, a census enumeration area covers the smallest territorial unit consisting of a contiguous area with known physical boundaries, located in an urban or rural area, and of a scale suitable for data collection. The combination of census enumeration areas in a country represents the entire national territory.

AREA

A household may be urban or rural, according to where it is located, based on the legislation in force for the Population Census. Urban status applies to cities (municipal centers), villages (district centers), and isolated urban areas. Rural status applies to all areas outside those limits.

LEVEL OF EDUCATION

This concept refers to the level of education that the individual was attending or had attended, even if they had not completed the entire cycle. For data collection purposes, the level of education was divided into 20 subcategories, ranging from "did not attend school" up to "PhD."

MONTHLY FAMILY INCOME

Monthly family income is defined as the sum of the income of all members of the household, including the respondent. For purposes of data publication, six income levels were established, starting at the monthly minimum wage (MW) as defined by the Brazilian federal government. The first level refers to households with a total income of up to one MW, while the sixth level refers to households with an income of over ten MW:

- up to one MW
- more than one MW up to two MW
- more than two MW up to three MW
- more than three MW up to five MW
- more than five MW up to ten MW
- more than ten MW

SOCIAL CLASS

The most precise term to designate this concept would be "economic class." However, this survey refers to it as "social class" in the tables and analyses. The economic classification was based on the Brazilian Economic Classification Criteria (Brazilian Criteria), as defined by the Brazilian Association of Research Companies (Abep). This classification is based on ownership of durable goods for household consumption and the level of education of the head of the household. Ownership of durable goods is based on a scoring system that divides households into the following economic classes: A1, A2, B1, B2, C, D, and E. The Brazilian Criteria was updated in 2015, resulting in a classification that is not comparable to the one previously in effect (Brazilian Criteria 2008). For results released in 2016 onward, the 2015 Brazilian Criteria were adopted.

ECONOMIC ACTIVITY STATUS

This refers to the economic activity status of respondents 10 years old or older. From a set of four questions, seven classifications were obtained related to respondents' activity status. These alternatives were classified into two categories for analysis, as shown in Table 1.

TABLE 1
–
Classification of economic activity status

Response options in the questionnaire		Status classification
Code	Description	Description
1	Works with pay	In the workforce
2	Works with no pay, i.e., apprentice, assistant, etc.	
3	Works, but is on leave of absence	
4	Attempted to work in the last 30 days	
5	Unemployed and has not looked for a job in the last 30 days	Not in the workforce

PERMANENT PRIVATE HOUSEHOLDS

This refers to a private household located in a unit that serves as a residence (house, apartment, or room). A permanent private residence is the dwelling of a person or group of people, where the relationship is dictated by kinship ties, domestic dependence, or shared living arrangements.

INTERNET USERS

Internet users are considered to be individuals who have used the Internet at least once in the three months prior to the interview, as defined by the International Telecommunication Union (ITU, 2020).

Target population

The survey target population was made up of Brazilian children aged 9 to 17 years, residing in permanent private Brazilian households.

Reference and analysis unit

The survey's reference and analysis unit consists of children aged 9 to 17 years. For the indicators regarding the population of Internet users, analysis considered the answers provided by the child selected for the survey.

Parents and legal guardians are considered responding units, because they provide information on the selected children. They can be considered a unit of analysis, but they do not represent the overall population of parents or legal guardians residing in permanent private households in Brazil, since the selection of parents and legal guardians depends on the selection of their children.

Domains of interest for analysis and dissemination

For the reference and analysis units, the results are reported for domains based on the variables and levels described below.

For the variables related to households:

- **area:** corresponds to the definition of census enumeration areas, according to IBGE criteria, whether rural or urban;
- **region:** corresponds to the regional divisions of Brazil, according to IBGE criteria: the macroregions Center-West, Northeast, North, Southeast, and South;
- **family income:** corresponds to the division of the total income of the households or residents into ranges of MW. These ranges are the following: up to one MW, more than one MW up to two MW, more than two MW up to three MW, more than three MW up to five MW, more than five MW up to ten MW, or more than ten MW;
- **social class:** corresponds to the division into A, B, C, and DE, in accordance with the Brazilian Criteria.

Regarding variables concerning individuals, the following characteristics were added to the domains mentioned above:

- **sex of child:** corresponds to the division into male or female;
- **level of education of parents and legal guardians:** corresponds to the divisions of illiterate/preschool, primary education, secondary education, and tertiary education;
- **age group of child:** corresponds to the divisions of 9 to 10 years old, 11 to 12 years old, 13 to 14 years old, and 15 to 17 years old.

Data collection instrument

INFORMATION ON THE DATA COLLECTION INSTRUMENTS

Data was collected through structured questionnaires with closed questions and predefined answers (single or multiple-choice answers). Children answered two different questionnaires: one was interviewer-administered (face-to-face interaction) and the other was self-completed. The self-completion questionnaire covered more sensitive subjects and was designed to allow children to answer the questions without interference by others, so as to provide a more comfortable environment for the respondents. Self-completion questionnaires were adapted according to the profile of two age groups: One version was targeted to children aged 9 to 10 years, and the other to children aged 11 to 17 years.

In addition to the questionnaires designed for children, the survey included a separate questionnaire for parents and legal guardians.

For more information about the questionnaires, see the section "Data collection instruments" in the "Data Collection Report".

Sampling plan

SURVEY FRAME AND SOURCES OF INFORMATION

To incorporate the new survey frame derived from the 2022 IBGE Population Census, the sampling plan was redone, aiming to improve the reach of the survey's traditional objectives, increase the capacity to produce estimates by federative units (a new objective), and improve the efficiency of the sample.

Two survey frames developed by the IBGE were used to implement the project sample:

- Registration of census enumeration areas from the Geographic Operational Base (BOG) of the 2022 IBGE Population Census (IBGE, 2024a)
- The National Address Registry for Statistical Purposes (CNEFE) of the 2022 IBGE Population Census (IBGE, 2024b)

The first survey frame was released by the IBGE on November 14, 2024, and consists of three sets of information: the definitive sectoral grid of the 2022 Census, with polygons describing census enumeration areas; tabular data aggregated by census enumeration areas of this sectoral grid; and the starting point and perimeters of the census enumeration sectors.

The second survey frame (CNEFE) contains a list of addresses for all buildings found by the IBGE during the 2022 Population Census data collection and classified as establishments or dwellings. This survey frame will serve as the basis for the address update phase in the sectors of the selected sample before selecting household addresses for the survey. After updating the addresses for each of the sample sectors, this information will serve as the basis for selecting the sample of households for the survey.

An important aspect of defining the survey population resulted from the exclusion of a set of census sectors from the sectoral grid. Such exclusion is a standard practice in household sampling surveys and follows established patterns in surveys of a similar nature. The following were excluded:

a. 1,101 areas classified by the IBGE as "Water Bodies," according to the variable "cd_sit";

b. 180 areas classified by the IBGE as "Barracks," according to the variable "cd_tipo";

c. 143 areas classified by the IBGE as "Accommodation/Camping," according to the variable "cd_tipo";

d. 7,805 areas classified by the IBGE as "Indigenous grouping," according to the variable "cd_tipo";

e. 837 areas classified by the IBGE as "Prison unit," according to the variable "cd_tipo";

f. 716 sectors classified by the IBGE as "Convent/hospital/ILPI (long-term care institution for the elderly)/IACA (shelter institution for children and adolescents)," according to the variable "cd_tipo";

g. 2,085 sectors classified by the IBGE as "Settlement project village," according to the variable "cd_tipo"; and

h. 5,591 sectors classified by the IBGE as "Quilombola grouping," according to the variable "cd_tipo."

After the indicated exclusions, the set of census enumeration areas considered eligible and maintained in the register for sample selection then totaled 449,639. Table 2 shows the distribution by situation and type:

TABLE 2
–
Total number of eligible census enumeration areas in the survey frame and total number of occupied private households and residents in those areas, by area situation

Situation	Areas	Households	Residents
Urban area with a high density of buildings in a city or town	308 451	58 891 797	162 192 390
Urban area with low building density in a city or town	31 975	3 685 672	10 650 356
Urban center	12 038	1 347 629	3 932 118
Rural cluster – Village	13 997	1 222 429	3 712 325
Rural cluster – Rural nucleus	286	16 211	51 261
Rural cluster – Hamlet	1 371	61 780	181 060
Rural area (excluding clusters)	81 521	6 673 098	19 669 294
Total	**449 639**	**71 898 616**	**200 388 804**

Source: Aggregated Archive of Census Enumeration Areas of the 2022 Population Census (IBGE, 2024a).

One of the difficulties encountered during the preparation of the registration for the survey was the fact that there are many census enumeration areas with a small number of households surveyed. For example, we found 21,558 eligible areas with fewer than 15 households (4.8%) and 74,367 of them with 15–59 households (16.5%).

This difficulty motivated the construction of primary sampling units (PSU) through aggregation or combination of census enumeration areas, in order to avoid selecting very small areas, in which the survey might eventually fail to obtain the desired sample. This operation is described in the "PSU Formation" section.

PSU FORMATION

This section describes the process of constructing the PSU, based on the new IBGE census sector grid described in the previous section. To carry out this construction, the R programming language was used, in which three optimization algorithms were implemented (Goldbarg et al., 2015), which were applied within previously defined geographic and situational strata. Taking into account geographical stratification, criteria related to formation, contiguity, and capacity were applied. In the end, each PSU corresponded to a grouping of census enumeration areas that met the defined criteria.

Within each municipality and situational stratum, two types of PSU were constructed: (I) PSU with, obligatorily, a minimum of 60 occupied permanent private dwellings (DPPO, as per its acronym in Portuguese) — capacity criterion — whose census enumeration areas were contiguous; and (II) PSU that preferably have a minimum of 60 DPPO but with noncontiguous census tracts.

Additionally, for the type I PSU, the goal was to maximize the number of PSU formed. Regarding type II, each PSU consisted of, at most, two census enumeration areas that had high dissimilarity regarding the stratification variable corresponding to the percentage of residents in households with up to one bathroom in each area. More specifically, if a municipality's situational stratum has n census enumeration areas, where n is even, $n/2$ PSU will be formed, and if n is odd, there will be $n/2 + 1$ PSU.

The definition of a PSU, considering the aforementioned criteria of capacity and contiguity, refers to a problem of capable and connected clustering (Brito & Montenegro, 2010), in which each object corresponds to a census sector and the PSU refers to the groups. This can be formulated as a graph optimization problem (Ahuja et al., 1993) in which the goal is to maximize the objective function associated with the number of PSU formed. For the construction of type I PSU, two algorithms were implemented: the minimum spanning tree-based heuristic (MSTBH) and the node aggregation heuristic (NAH), both based on graph concepts. In the case of type II PSU, an algorithm was developed that uses the concepts of median and sector position in the ordered list based on the stratification variable.

To apply these three algorithms, briefly described below, a code was developed in the R language containing a set of procedures—in particular, a procedure that reads and validates the neighborhood file and the census enumeration area registration file from the 2022 census, which contains the values of the stratification variable considered. The neighborhood file comprises a list of codes for the areas neighboring each area, with only those belonging to the same municipality being considered neighbors.

The information from these two files was separated by federative unit, and the developed algorithms were applied to each of its municipalities, using the two aforementioned files as input.

In general terms, after applying the reading and validation procedures, a second procedure was carried out for each federative unit (FU), which constructs a data structure that reflects the combination of geographic and situational strata, resulting in the nine types of segments listed in Tables 3 and 4 below:

TABLE 3
–
Segments considered in the formation of the PSU

Type of segment (by municipality)	Criteria considered
Capital_Urban_Nonspecial	Capacity and contiguity
Capital_Urban_Slum_Community	Capacity and contiguity
Capital_Rural	Capacity and contiguity
MR_Capital_and_Nonspecial_Urban	Capacity and contiguity
MR_Capital_and_Urban_Slum_Community	Capacity and contiguity
MR_Capital_Rural	Capacity and contiguity
Noncapital_Nonspecial_Urban	Capacity and maximum dissimilarity
Noncapital_Urban_Slum_Community	Capacity and maximum dissimilarity
Interior_Rural	Capacity and maximum dissimilarity

TABLE 4
–
Total number of PSU formed according to the nine types of segments

Segment	Total of PSU
Capital_Urban_Nonspecial	70 386
Capital_Urban_Slum_Community	17 188
Capital_Rural	985
MR_Capital_and_Nonspecial_Urban	47 323
MR_Capital_and_Urban_Slum_Community	7 023
MR_Capital_Rural	3 974
Noncapital_Nonspecial_Urban	102 932
Noncapital_Urban_Slum_Community	4 566
Interior_Rural	46 949
Total	**301 326**

Source: Aggregated Archive of Census Enumeration Areas of the 2022 Population Census (IBGE, 2024a).

Due to the contiguity criterion established for segments 1 to 6, a procedure was implemented that constructed a graph G with n vertices and m edges for each municipality, from the information in the neighborhood file. This graph fulfilled the contiguity criterion of the problem and was used as the input data structure for the MSTBH and NAH algorithms. In this graph, each vertex v_i corresponds to a census enumeration area i, and each edge $a_{ij} = (v_i, v_j)$ expresses a neighborhood relationship between two vertices v_i and v_j, corresponding to two areas i and j that are part of the same municipality and are neighbors (share a border). Additionally, each vertex v_i of G was assigned the value corresponding to the DPPO number of sector i, and each edge a_{ij} was assigned absolute difference (dissimilarity) between the DPPO number of sectors i and j.

The MSTBH algorithm is based on the construction of a minimum spanning tree (MST) (Ahuja et al., 1993), which corresponds to a graph T containing all n vertices of G (areas) and the $n-1$ edges of G with the smallest absolute difference values.

To construct a set of k PSU, where k is at most equal to n, in which all sectors have a DPPO number ≥ 60, a partitioning procedure is applied to T that iteratively removes $k-1$ edges of T, ensuring immediately, by the properties of the AGM, the satisfaction of the contiguity constraint—that is, each edge a_{ij} removed produces two connected subtrees corresponding to two contiguous partitions that are candidates for the formation of two PSU.

To obtain the largest number of possible PSU at the end of the partitioning process, in each iteration, all possible edge removals from T are evaluated, removing the one that produces two subtrees with the largest difference between the sums of the DPPO associated with the sectors corresponding to their vertices, so that the two partitions (subtrees) T_1 and T_2 are feasible (sum of DPPO ≥ 60), thus defining two possible PSU.

Next, the feasible partition (subtree T_1 or T_2) with the lowest sum of DPPO is defined as a new PSU, which is added to the current set of PSU under construction, while the feasible partition with the highest sum of DPPO is associated with the current T tree. This process is repeated in subsequent iterations until it is no longer possible to produce new feasible partitions (PSU) by removing any edge from the current tree T. The pseudocode below outlines the basic steps of the MSTBH algorithm.

BOX 1

—

MSTBH ALGORITHM

Construct graph ***G*** from the neighborhood relationship of the sectors that make up the processed municipality.
Construct the MST ***T*** from ***G***.
$T_{current} \leftarrow T$
part_viable ← 1
$C_{PSU^{**}} \leftarrow \varnothing$ (Set of formed PSU)
While (part_viable = 1) **Do**
  Remove each edge a_{ij} from the $T_{current}$ and evaluate the total DPPO in the two partitions produced (candidates for PSU).
  If there is at least one edge removal that produces two feasible partitions, T_1 and T_2, **then**
    Remove from the $T_{current}$ edge a_{ij} that produces two partitions with the **largest difference** between the sums of the DPPO
    $C_{PSU} \leftarrow C_{PSU} \cup T_{smallest}$ (subtree corresponding to the feasible partition with the smallest sum of DPPO)
    $T \leftarrow T_{largest}$ (subtree corresponding to the feasible partition with the largest sum of DPPO)
  If not
    part_viable ← 0
  End-If
End-While
Return C_{PSU}

Due to the processing time required by the MSTBH algorithm—as the number of sectors analyzed increases and in order to validate the results produced regarding the quality of the solutions, measured by the largest possible number of PSU formed per municipality—a second algorithm, called NAH, was implemented. This algorithm also uses the previously defined graph *G* as its input data structure, but it differs from the MSTBH algorithm in how it constructs the PSU, being applied in two basic steps:

- **Step 1:** A procedure is applied that identifies all areas in the municipality undergoing processing that have a DPPO number greater than or equal to 60, with each of these sectors automatically defined as a PSU.
- **Step 2:** After step 1, if there are areas with fewer than 60 DPPO, the goal is to form new PSU by joining these sectors, evaluating whether they are contiguous (based on graph *G*), and aiming to maximize the number of PSU. In this sense, to form new PSU, various combinations of these areas are evaluated to perform the joining, prioritizing those with the fewest number of sectors and that meet the criteria of capacity and contiguity.

The MSTBH and NAH algorithms were applied to all municipalities defined by segments 1 to 6.

Finally, for the construction of PSU associated with municipalities defined by segments 7 to 9, where the contiguity restriction is not considered, and the capacity restriction associated with the number of DPPO is desirable but not mandatory, an algorithm called heuristic for median maximization (HMEDMAX) was implemented. This algorithm was developed to enable the formation of PSU with two census enumeration areas each, such that the areas allocated to the same PSU are as dissimilar as possible to each other (Euclidean distance) with respect to the stratification variable corresponding to the percentage of residents in households with up to one bathroom in each area.

The algorithm was applied considering two possible cases: (1) an even number of areas and (2) an odd number of areas. In case 1, the areas are ordered in ascending order, in relation to the values of the stratification variable, forming $n/2$ PSU by joining the area in position 1 with that in position $n/2$, the area in position 2 with that in position $(n/2)+1$, and so on. In case 2, where n is odd, the first step involves evaluating all combinations of the n areas taken $(n-1)$ to $(n-1)$ $(C_n^{(n-1)})$, producing n subsets formed by $(n-1)$ areas. In each subset, its sectors are ordered in ascending order by the stratification variable, and their joints are performed in a manner analogous to that described in case 1, then calculating the median of the dissimilarities for the $n/2$ pairs of areas. The subset of n sectors associated with the $n/2$ pairs with the highest median dissimilarity and that meet the capacity constraint is considered the solution set for the PSU. Finally, the area not included in this set of $n/2$ PSU is defined as a new PSU, separately.

SAMPLE STRATIFICATION

The proposed sampling plan for the survey considers a strategy based on stratified and cluster sampling in three or four stages—for an understanding of the technical terms used here, see Silva et al. (2020).

Stratification was carried out in three stages, the first being geographical in nature, associated with the demand for estimates for predefined areas of interest; the second was based on the separation of a PSU from each natural stratum according to its situation (with three categories: "non-special urban," "urban community or slum" and "rural"); the third was statistical in nature, aiming to increase the efficiency of the sampling plan by grouping sectors of similar socioeconomic level.

For geographic stratification, the following were defined as areas of interest:

a. Municipalities that are the capitals of the 26 states of the federation, plus the Federal District, totaling 27 natural strata.

b. The groups of municipalities surrounding 11 metropolitan regions based in capital cities—Manaus, Belém, Fortaleza, Recife, Salvador, Belo Horizonte, Rio de Janeiro, São Paulo, Curitiba, and Porto Alegre—and the Integrated Development Region (RIDE, as per its acronym in Portuguese) of the Federal District and its surroundings, totaling 12 natural geographic strata, since, in the case of the RIDE of the Federal District and its surroundings, there are municipalities in two states: Minas Gerais and Goiás.

c. The sets of municipalities in noncapital cities of 26 states, obtained by excluding those already considered in the natural strata formed by the domains of interest *a* and *b* above.

Thus, at the end of this stratification stage, 65 natural strata were formed, whose descriptions can be seen in Table 5 below.

TABLE 5
–
Total number of PSU in the population, by natural stratum

Federative unit	Natural stratum	Number of PSU (population)
Rondônia	11 - Capital city	708
Rondônia	11 - Noncapital cities	1 251
Acre	12 - Capital city	638
Acre	12 - Noncapital cities	589
Amazonas	13 - Capital city	3 098
Amazonas	13 - Noncapital cities	1 770
Amazonas	13 – Metropolitan Region of Manaus (AM)	991
Roraima	14 - Capital city	479
Roraima	14 - Noncapital city	283
Pará	15 - Capital city	1 995
Pará	15 - Noncapital cities	5 555
Pará	15 - Metropolitan Region of Belém (PA)	1 776
Amapá	16 - Capital city	647
Amapá	16 - Noncapital cities	363
Tocantins	17 - Capital city	609
Tocantins	17 - Noncapital cities	1 777
Maranhão	21 - Capital city	1 674
Maranhão	21 - Noncapital cities	6 573
Piauí	22 - Capital city	1 437
Piauí	22 - Noncapital cities	2 976
Ceará	23 - Capital city	4 041
Ceará	23 - Noncapital cities	6 605
Ceará	23 - Metropolitan Region of Fortaleza (CE)	2 664

CONTINUES ►

▶ CONTINUES

Federative unit	Natural stratum	Number of PSU (population)
Rio Grande do Norte	24 - Capital city	1 068
Rio Grande do Norte	24 - Noncapital cities	3 013
Paraíba	25 - Capital city	1 602
Paraíba	25 - Noncapital cities	4 383
Pernambuco	26 - Capital city	2 739
Pernambuco	26 - Noncapital cities	5 738
Pernambuco	26 - Metropolitan Region of Recife (PE)	4 187
Alagoas	27 - Capital city	1 475
Alagoas	27 - Noncapital cities	2 501
Sergipe	28 - Capital city	1 087
Sergipe	28 - Noncapital cities	2 318
Bahia	29 - Capital city	4 359
Bahia	29 - Noncapital cities	11 622
Bahia	29 - Metropolitan Region of Salvador (BA)	2 044
Minas Gerais	31 - Capital city	4 878
Minas Gerais	31 - Noncapital cities	19 636
Minas Gerais	31 - RIDE of the Federal District and surrounding area	192
Minas Gerais	31 - Metropolitan Region of Belo Horizonte (MG)	6 043
Espírito Santo	32 - Capital city	621
Espírito Santo	32 - Noncapital cities	5 414
Rio de Janeiro	33 - Capital city	13 022
Rio de Janeiro	33 - Noncapital cities	6 983
Rio de Janeiro	33 - Metropolitan Region of Rio de Janeiro (RJ)	12 718
São Paulo	35 - Capital city	25 597
São Paulo	35 - Noncapital cities	27 989
São Paulo	35 - Metropolitan Region of São Paulo (SP)	18 299
Paraná	41 - Capital city	3 125
Paraná	41 - Noncapital cities	8 775
Paraná	41 - Metropolitan Region of Curitiba (PR)	2 907
Santa Catarina	42 - Capital city	956

► CONCLUSION

Federative unit	Natural stratum	Number of PSU (population)
Santa Catarina	42 - Noncapital cities	8 521
Rio Grande do Sul	43 - Capital city	2 624
Rio Grande do Sul	43 - Noncapital cities	8 744
Rio Grande do Sul	43 - Metropolitan Region of Porto Alegre (RS)	5 202
Mato Grosso do Sul	50 - Capital city	1 597
Mato Grosso do Sul	50 - Noncapital cities	2 144
Mato Grosso	51 - Capital city	1 094
Mato Grosso	51 - Noncapital cities	4 085
Goiás	52 - Capital city	2 242
Goiás	52 - Noncapital cities	4 839
Goiás	52 - RIDE of the Federal District and surrounding area	1 297
Federal District	53 - Capital city	5 147
Total		**301 326**

The second stage of stratification used the PSU situation (with three categories: "non-special urban," "urban community or favela," and "rural"). Next, the total sample size of each natural stratum was allocated to the corresponding situational strata, using an allocation proportional to the power of 0.8 of the number of PSU in the stratum, but maintaining a minimum of three PSU in the sample from each stratum. The use of this allocation aimed to reduce situations of very small samples in the smallest strata.

After being separated by situation, the PSU were further stratified based on the percentage of people living in households without a bathroom or with up to one bathroom, per PSU. This stratification variable was used because, at the time of sample selection, there were no data on the average income, by census enumeration area, of the person responsible for the household. Based on experience from previous censuses, this stratification variable is one with the greatest predictive power regarding income levels in census enumeration areas.

At this stage of stratification, a stratum formed by the combination of the natural stratum and the PSU situation could or could not be subdivided into socioeconomic strata. Strata with sample sizes smaller than eight PSU were not subdivided. For strata with eight or more PSU in the sample, the subdivision had a number of strata that varied according to Table 6.

TABLE 6

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Number of strata formed according to the sample size of PSU in the natural and situational strata

Number of PSU in the sample	Number of strata
8 to 11	2
12 to 18	3
19 to 24	4
25 or more	5

The formation of socioeconomic level strata used the quantiles of the percentage of people living in households without a bathroom or with up to one bathroom, and the equal allocation of the sample across the resulting strata. Thus, for example, in a natural and situational stratum with a sample size of 20 PSU, four strata were formed based on the quartiles of the distribution of the stratification variable, with five PSU allocated to each of the strata formed at the end. This process resulted in the formation of 378 strata, from which the PSU sample was then selected.

SAMPLE ALLOCATION

The allocation of the PSU sample to the natural strata was defined based on two criteria: (1) allocating larger samples to the capital city and Federal District strata to allow for the development of reasonably accurate estimates for these domains; and (2) allocating equal samples to the other natural strata, aiming to obtain estimates of similar accuracy for these strata. Sample sizes were determined after analyzing the accuracy of estimates obtained in the latest editions of the ICT Households survey. Table 7 below shows the allocation of the PSU sample.

TABLE 7

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Total number of PSU in the sample by natural stratum

Federative unit	Natural stratum	Number of PSU (sample)
Rondônia	11 - Capital city	30
Rondônia	11 - Noncapital cities	30
Acre	12 - Capital city	30
Acre	12 - Noncapital cities	30
Amazonas	13 - Capital city	40
Amazonas	13 – Noncapital cities	30

CONTINUES ▶

► CONTINUES

Federative unit	Natural stratum	Number of PSU (sample)
Amazonas	13 – Metropolitan Region of Manaus (AM)	30
Roraima	14 – Capital city	30
Roraima	14 - Noncapital cities	30
Pará	15 – Capital city	40
Pará	15 – Noncapital cities	30
Pará	15 – Metropolitan Region of Belém (PA)	30
Amapá	16 – Capital city	30
Amapá	16 - Noncapital cities	30
Tocantins	17 – Capital city	30
Tocantins	17 - Noncapital cities	30
Maranhão	21 – Capital city	30
Maranhão	21 - Noncapital cities	30
Piauí	22 – Capital city	30
Piauí	22 - Noncapital cities	30
Ceará	23 - Capital city	40
Ceará	23 - Noncapital cities	30
Ceará	23 - Metropolitan Region of Fortaleza (CE)	30
Rio Grande do Norte	24 – Capital city	30
Rio Grande do Norte	24 - Noncapital cities	30
Paraíba	25 – Capital city	30
Paraíba	25 - Noncapital cities	30
Pernambuco	26 - Capital city	40
Pernambuco	26 - Noncapital cities	30
Pernambuco	26 – Metropolitan Region of Recife (PE)	30
Alagoas	27 – Capital city	30
Alagoas	27 - Noncapital cities	30
Sergipe	28 – Capital city	30
Sergipe	28 - Noncapital cities	30
Bahia	29 - Capital city	40
Bahia	29 - Noncapital cities	30

▸ CONCLUSION

Federative unit	Natural stratum	Number of PSU (sample)
Bahia	29 - Metropolitan Region of Salvador (BA)	30
Minas Gerais	31 - Capital city	40
Minas Gerais	31 - Noncapital cities	30
Minas Gerais	31 - RIDE of the Federal District and surrounding area	15
Minas Gerais	31 - Metropolitan Region of Belo Horizonte (MG)	30
Espírito Santo	32 – Capital city	30
Espírito Santo	32 - Noncapital cities	30
Rio de Janeiro	33 - Capital city	40
Rio de Janeiro	33 - Noncapital cities	30
Rio de Janeiro	33 - Metropolitan Region of Rio de Janeiro (RJ)	30
São Paulo	35 - Capital city	40
São Paulo	35 - Noncapital cities	30
São Paulo	35 - Metropolitan Region of São Paulo (SP)	30
Paraná	41 - Capital city	40
Paraná	41 - Noncapital cities	30
Paraná	41 – Metropolitan Region of Curitiba (PR)	30
Santa Catarina	42 – Capital city	30
Santa Catarina	42 – Noncapital cities	30
Rio Grande do Sul	43 - Capital city	40
Rio Grande do Sul	43 - Noncapital cities	30
Rio Grande do Sul	43 - Metropolitan Region of Porto Alegre (RS)	30
Mato Grosso do Sul	50 – Capital city	30
Mato Grosso do Sul	50 - Noncapital cities	30
Mato Grosso	51 – Capital city	30
Mato Grosso	51 - Noncapital cities	30
Goiás	52 - Capital city	40
Goiás	52 - Noncapital cities	30
Goiás	52 - RIDE of the Federal District and surrounding area	15
Federal District	53 - Capital city	70
Total		**2 070**

SAMPLE SELECTION

SELECTION OF PSU

In each of the strata, the selection of PSU was made using Pareto's method of probability proportional to size (Rosén, 2000). This method was also adopted by the IBGE to carry out the sampling for the Integrated System of Household Surveys (Freitas & Antonaci, 2014). The size measurement considered for PSU selection was defined as follows:

$$T_i = max\,(10^{0.8}; D_i^{0.8})$$

where D_i represents the number of occupied private households in the PSU, as determined in the 2022 Population Census. Using a power of 0.8 reduces the asymmetry in the distribution of PSU sizes, and the lower limit was specified to prevent PSU with very small inclusion probabilities from having excessively large weights when weighting the sample.

It is worth noting that, despite applying the described algorithm to create PSU with an adequate minimum size, for various reasons, a few PSU finished the process with sizes still below the desired minimum limit. Thus, it was important to maintain the idea that PSU with fewer than 10 occupied private households should have their size imputed at a value corresponding to this lower level, after the adopted power transformation.

In PSU with up to two census enumeration areas, both were surveyed. In areas comprising three or more areas, two of them were randomly selected to participate in the survey. The selection of census enumeration areas within the PSU was also done using Pareto's method of probability proportional to size (Rosén, 2000). The size measurement considered for selecting sectors used the same transformation as for the PSU—in this case, the number of occupied private households was that of each census enumeration area.

After applying this process, PSU and census enumeration areas were selected for the research sample. An important distinction occurred in the stage of selecting households within census enumeration areas. In the PSU of the capital cities and metropolitan regions of capital cities considered, 15 households were always selected per PSU. When the PSU in question had two areas in the sample, 8 households were selected from the larger of the two areas and 7 from the smaller of the two. In the case of a PSU located in the natural strata of the interior, 15 households were always selected per area in the sample, whether the PSU had one or two sectors in the corresponding sample.

SELECTION OF HOUSEHOLDS AND RESPONDENTS

Permanent private households within each PSU were selected using simple random sampling. In the first stage, the interviewers listed all the households in the PSU (approximately two census enumeration areas) to obtain a complete and updated record. After updating the number of households per PSU selected, 30 households per PSU were randomly chosen to be visited for interviews.

All households in the sample responded to the ICT Households questionnaire – Module A: Access to ICT in the household.

To determine which survey should be administered in the household (ICT Households – Individuals or ICT Kids Online Brazil), all the residents in each household were listed, and the survey was selected as follows:

1. When there were no residents in the 9 to 17 age group, the ICT Households interview was conducted with a resident 18 years old or older randomly selected from among the household's residents.
2. When there were residents in the 9 to 17 age group, a random number was generated between 0 and 1, and:
    a. If the number generated was smaller than or equal to 0.54, an interview using the ICT Kids Online Brazil survey was conducted with a resident 9 to 17 years old, randomly selected from among the household's residents in this age group, and with the person responsible for this selected resident.
    b. If the number generated was greater than 0.54 and equal to or less than 0.89, the ICT Households survey interview was conducted with a resident 10 to 17 years old, randomly selected from among the household's residents in this age group.
        - In households selected for the ICT Households survey (with a resident 10 to 17 years old) that only had residents 9 years old or younger, in addition to members 18 years old or older, the ICT Households survey was conducted with a randomly selected resident 18 years old or older.
    c. If the number generated was greater than 0.89, the interview for the ICT Households survey was conducted with a resident 18 years old or older randomly selected from among the residents of the household in this age group.

The selection of respondents in each household selected to answer the questionnaire was done after listing the residents.

Data collection procedures

DATA COLLECTION METHOD

Data collection was conducted using computer-assisted personal interviewing (CAPI), which consists of having a questionnaire programmed in a software system for tablets and administered by interviewers in face-to-face interaction.

Data processing

WEIGHTING PROCEDURES

The selection process for each household and resident, as described above, established an initial selection probability for each PSU. Based on the data collection results, nonresponse corrections were made for each step of the selection process. These steps are described below.

WEIGHTING OF PSU

Each PSU has a selection probability, as described in the "Selection of PSU" section. The inverse of this selection probability corresponds to the basic weight of each selected PSU. During data collection, it is possible that no answers will be collected from households for a PSU. In this case, nonresponse is adjusted considering that the nonresponse is random within the stratum. The correction of the weights of the responding PSU by stratum is given by Formula 1.

FORMULA 1

$$w_{ih}^{r} = w_{ih} \times \frac{\sum_{h=1}^{H} w_{ih}}{\sum_{h=1}^{H} w_{ih} \times I_{h}^{r}}$$

w_{ih}^{r} is the weight of PSU i in stratum h adjusted for nonresponse

w_{ih} is the base weight of the sampling design of PSU i in stratum h

I_{h}^{r} is an indicating variable that is assigned value 1 if PSU i in stratum h had at least one responding household and 0, otherwise

WEIGHTING OF HOUSEHOLDS IN THE PSU

Similar to the weighting of PSU, each household also has an initial selection probability. This probability is defined as the ratio between 15 (the number of households selected per census enumeration area) and the number of eligible households in each census enumeration area making up the PSU.

The first factor for calculating the weight of households is the estimated total of eligible households in the census enumeration area. Eligible households are permanent private households with residents able to answer the surveys (excluding only households with individuals unable to communicate in Portuguese or who have other conditions that make it impossible to carry out the survey), according to Formula 2.

FORMULA 2

$$E_{jih} = d_{jih} \times \frac{d^{E}_{jih}}{d^{A}_{jih}}$$

E_{jih} is the estimated total number of eligible households in census enumeration area j in PSU i in stratum h

d^{E}_{jih} is the total number of eligible households approached in census enumeration area j in PSU i in stratum h

d^{A}_{jih} is the total number of households contacted in census enumeration area j in PSU i in stratum h

d_{jih} is the total number of households listed in census enumeration area j in PSU i in stratum h

The second factor is the total number of eligible households in which the survey was conducted in the census enumeration area. The weight of each household in a census enumeration area is given by Formula 3.

FORMULA 3

$$w_{jih} = \frac{E_{jih}}{\sum_{k=1}^{n_{jih}} I^{r}_{kjih}}$$

w_{jih} is the weight of the households in census enumeration area j in PSU i in stratum h adjusted for nonresponse in the census enumeration area

E_{jih} is the estimated total number of eligible households in census enumeration area j in PSU i in stratum h

I^{r}_{kjih} is an indicating variable that is assigned value 1 if household k in census enumeration area j in PSU i in stratum h answered the interview and 0, otherwise

n_{jih} corresponds to the number of households selected in census enumeration area j in PSU i in stratum h

As with the PSU, some of the households selected refuse to participate in the survey. In some cases, a census enumeration area of a PSU may have no responding households. Therefore, it is necessary to correct the nonresponse of the census sector within the PSU.

Nonresponse for the households within the PSU is adjusted after calculating the weights of the households in the census enumeration area, as presented above. This adjustment is carried out using Formula 4.

FORMULA 4

$$w^{r}_{jih} = w_{jih} \times \frac{SC_{ih}}{\sum_{j=1}^{SC_{ih}} I^{r}_{ih}}$$

w^{r}_{jih} is the weight of the households in census enumeration area j in PSU i in stratum h adjusted for nonresponse in the PSU

w_{jih} is the weight of the households in census enumeration area j in PSU i in stratum h adjusted for nonresponse in the census enumeration area

SC_{ih} is the total number of census enumeration areas making up PSU i in stratum h

I^{r}_{ih} is an indicating variable that is assigned value 1 if census enumeration area j in PSU i in stratum h had at least one responding household and 0, otherwise

The final weight of each household, adjusted for nonresponse, is given by:

$$w^{d}_{jih} = w^{r}_{ih} \times w^{r}_{jih}$$

Calibration of households

Based on the household weight adjusted for nonresponse (w^{d}_{jih}), these weights are calibrated to known totals for households and the general population, obtained from estimates in the most recent Continuous National Household Sample Survey (Continuous Pnad) available (IBGE, 2023).

The calibration method considers the characteristics of households and population totals separately. The method used is the iterative proportional updating (IPU) (Ye et al., 2009). This algorithm makes it possible to establish equal weights for the people living in the same household, respecting marginal household and population totals. The methodology is applied to the set of residents who make up the sample and are listed in the household roster, with all residents initially receiving the same calculated household weight w^{d}_{jih}.

The characteristics used in the calibration are listed below:

For households:

- federative unit (2021 to 2024),
- area (rural or urban),
- household size (1, 2, 3, 4, 5, and 6 or more people).

For individuals:

- macro-region,
- area (rural or urban),
- sex,

- age group (0 to 2 years old, 3 to 5 years old, 6 to 8 years old, 9 years old, 10 to 15 years old, 16 to 24 years old, 25 to 34 years old, 35 to 44 years old, 45 to 59 years old, 60 years old or older).

As a result, a final weight is obtained for each household, given by w^{c}_{jih}, which is the weight of households in census enumeration area j in PSU i in stratum h adjusted for nonresponse and calibrated for household population and individual population totals.

The weights are calibrated using the *mlfit*[1] package of the free statistical software R.

WEIGHTING OF RESPONDENTS IN EACH HOUSEHOLD

In each selected household, the ICT Households survey was applied according to the composition of the household and a random survey and respondent selection process. The basic weight of each respondent in the survey is calculated using Formulas 5 and 6.

Residents 10 to 17 years old

FORMULA 5

$$w^{T}_{l/kjih} = \frac{1}{0.35 \times (1\text{-}p^{*})} \times P^{T}_{kjih}$$

$w^{T}_{l/kjih}$ is the weight of the respondent 9 to 17 years old in household k in census enumeration area j in PSU i in stratum h

P^{T}_{kjih} is the number of people in the 9 to 17 age group in household k in census enumeration area j in PSU i in stratum h

Residents 18 years old or older

FORMULA 6

$$w^{A}_{l/kjih} = \frac{1}{0.11 \times (p^{*} \times 0.35)} \times P^{T}_{kjih}$$

$w^{A}_{l/kjih}$ is the weight of the respondent 18 years old or older in household k in census enumeration area j in PSU i in stratum h

P^{T}_{kjih} is the number of people 18 years old or older in household k in census enumeration area j in PSU i in stratum h

p^{*} is an estimate of the proportion of households with only 9-year-old residents compared to the total number of households with residents 9 to 17 years old, obtained from the most recent microdata available from the Continuous National Household Sample (Continuous Pnad). In households selected to participate in the ICT Households —Individuals survey (with residents 10 to 17 years old) with only 9-year-olds, in addition to members 18 years old or older, the ICT Households — Individuals survey was conducted with a randomly selected resident 18 years old or older

[1] See https://cran.r-project.org/web/packages/mlfit/

FINAL WEIGHT OF EACH RESPONDENT

The final weight of each individual interviewed in the survey was obtained by multiplying the weights obtained in each step of the weighting process.

a. Weight of the respondent to the ICT Households survey (with residents 10 to 17 years old):

$$w_{lkjih} = w^{c}_{jih} \times w^{T}_{l/kjih}$$

b. Weight of the respondent to the ICT Households survey (with residents 18 years old or older):

$$w_{lkjih} = w^{c}_{jih} \times w^{A}_{l/kjih}$$

CALIBRATION OF THE WEIGHT OF EACH RESPONDENT

The weights of the interviews were calibrated to reflect certain known and accurately estimated population counts, obtained from the most recent Continuous Pnad survey, as it is also done for households. This procedure, in addition to correction for nonresponse, sought to correct biases associated with nonresponse of specific groups in the population, for all the respondents selected in the households to answer the survey.

The variables considered for calibration of the weights of individuals in the ICT Households survey were as follows: sex, age group (six categories: 10 to 15 years, 16 to 24 years, 25 to 34 years, 35 to 44 years, 45 to 59 years, and 60 years old or older), household area (urban or rural), ICT strata, economic activity status (two categories: in the workforce or not in the workforce), and level of education (four categories: illiterate/preschool, primary education, secondary education, or tertiary education).

The calibration of the weights was implemented using the calibration function of the survey library (Lumley, 2010), available in the free statistical software R.

SAMPLING ERRORS

Estimates of margins of error took into account the sampling plan set for the survey. The replication method was used for the individuals who responded to the survey, using the *as.svrepdesign* function in the R survey package. In this method, 200 weights are generated, which correspond to 200 samples with replacement of the original sample, following the same design (stratified and conglomerate).

The replication method was also used to estimate margins of error for the households responding to the survey. In this case, as the calibration process is not available in the R survey package, replicas were generated based on the population using the following algorithm:

1. 200 replicas were generated with weights only adjusted for nonresponse, leaving the base with 201 weights.

2. The original weight, adjusted for nonresponse, is scaled to the totals for households and individuals using the IPU method.
3. For the 200 replicate weights generated, calibrations were made for the 200 replicate weights available in the Continuous Pnad.

The result is a household database with 201 weights: the weight that provides precise estimates and 200 replicate weights used to calculate the errors of the precise estimates. This adjustment methodology is described in Opsomer and Erciulescu (2021).

From the estimated variances, we opted to disclose errors expressed as the margin of error of the sample. For publication, margins of error were calculated at a 95% confidence level. Thus, if the survey were repeated several times, 19 times out of 20, the range would include the true population value.

Other values derived from this variability are usually presented, such as standard deviation, coefficient of variation, and confidence interval.

The margin of error is calculated by multiplying the standard error (square root of the variance) by 1.96 (sample distribution value, which corresponds to the chosen significance level of 95%). These calculations were made for each variable in all tables. Therefore, all indicator tables have margins of error related to each estimate presented in each cell of the table.

Data dissemination

The results of this survey are presented according to the variables described in the section "Domains of interest for analysis and dissemination."

In some results, rounding caused the sum of partial categories to be different from 100% for single-answer questions. The sum of frequencies in multiple-answer questions usually exceeds 100%. It is worth mentioning that, in the tables of results, hyphens (-) are used to represent nonresponse. Furthermore, since the results are presented without decimal places, cells with zero value mean that there was an answer to the item, but it was explicitly greater than zero and lower than one.

The results of this survey are published online and made available on the website (https://www.cetic.br/) and on the data visualization portal of Cetic.br|NIC.br (https://data.cetic.br/). The tables of proportions, totals, and margins of error for each indicator are available for download in Portuguese, English, and Spanish. More information on the documentation, metadata, and microdata databases of the survey are available on the microdata webpage (https://www.cetic.br/microdados/).

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Data Collection Report

ICT KIDS ONLINE
BRAZIL SURVEY 2025

Data Collection Report
ICT Kids Online Brazil 2025

The Brazilian Internet Steering Committee (CGI.br), through the Regional Center for Studies on the Development of the Information Society (Cetic.br), of the Brazilian Network Information Center (NIC.br), presents the "Data Collection Report" of the ICT Kids Online Brazil 2025 survey. The objective of this report is to provide information about specific characteristics of this edition of the survey, including changes made to data collection instruments, sample allocation, and response rates.

The complete survey methodology, including the objectives, main concepts, definitions, and characteristics of the sampling plan, is described in the "Methodological Report", available in this publication.

Sample allocation

Sample allocation, as described in the "Methodological Report", is based on the selection of 40 primary sampling units per federative unit. For the 2025 collection, the response rates for the 2024 survey were analyzed, and to mitigate a fall in these rates for some locations, complementary census enumeration areas were incorporated into the original sample.[1] Table 1 presents the number of census enumeration areas and households planned for selection per federative unit for the ICT Households 2025 sample.

[1] Complementary census enumeration areas were added for the following states: Ceará, Minas Gerais, Rio de Janeiro, Paraná, and Rio Grande do Sul.

TABLE 1

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Sample allocation by federative unit

Federative unit	Census enumeration areas	Households
Acre	91	1 350
Alagoas	86	1 275
Amapá	81	1 170
Amazonas	138	1 935
Bahia	131	1 935
Ceará	142	1 950
Federal District	73	1 050
Espírito Santo	78	1 125
Goiás	125	1 650
Maranhão	84	1 245
Mato Grosso	89	1 320
Mato Grosso do Sul	90	1 350
Minas Gerais	166	2 175
Pará	135	1 950
Paraíba	88	1 260
Paraná	130	1 935
Pernambuco	131	1 950
Piauí	85	1 260
Rio de Janeiro	134	1 935
Rio Grande do Norte	77	1 155
Rio Grande do Sul	132	1 935
Rondônia	91	1 350
Roraima	79	1 185
Santa Catarina	89	1 305
São Paulo	134	1 920
Sergipe	84	1 245
Tocantins	87	1 230
Total	**2 850**	**41 145**

Data collection instruments

THEMES

In this edition, the ICT Kids Online Brazil survey maintained the rotation system for its thematic modules, adopted since 2017, in its data collection instruments.

In addition to contextual and sociodemographic variables, the questionnaire administered to children in this year's survey also collected indicators through the following thematic modules:

- **Module A:** Access;
- **Module B:** Online activities – opportunities;
- **Module C:** Online activities – communication;
- **Module D:** Internet skills;
- **Module E:** Mediation of Internet use;
- **Module F:** Risks and harm – values;
- **Module G:** Risks and harm – aggressive/sexual/transversal;
- **Module H:** Privacy.

In the questionnaire for parents and legal guardians, indicators were produced through the following thematic modules:

- **Module A:** Access;
- **Module B:** Risks and harm – values;
- **Module C:** Mediation of Internet use;
- **Module D:** Safe Internet use;
- **Module F:** Technical mediation of Internet use.

PRETESTS

Pretests were conducted to identify potential problems at fieldwork stages, such as approaching households, selecting interviews on the tablets, and administering the questionnaire. This also helped to evaluate how well the questionnaires flowed and the time needed to administer them.

Ten interviews were conducted in households located in municipalities of the state of São Paulo, including Itaquaquecetuba, São Paulo, and Mairiporã.

In the 2025 edition, households were approached intentionally for pretests, without prior listing or random selection of households. Initially, the interviewers first certified whether there were any residents between 9 and 17 years old in the households, and if their parents or legal guardians were present, in the different profiles desired for the pretest.

Furthermore, not all visits were conducted as foreseen in the procedure for approaching households on different days and at different times. Interviewers only listed the residents who were present at the time of the approach.

The complete pretest interviews administered to the children and their parents and legal guardians lasted an average of 60 minutes.

CHANGES TO DATA COLLECTION INSTRUMENTS

The data collection instruments for the ICT Kids Online Brazil survey underwent revisions for this edition, primarily due to the module rotation system and pretest results.

In the questionnaire for children, in relation to the 2024 edition of the survey, the consumption module was reintroduced. For the first time, the survey examined the frequency of Internet access by device and location. Also for the first time, the survey examined the use of generative Artificial Intelligence (AI) tools and the types of video viewed online. In addition, the survey began to investigate exposure to videos or images of people promoting gambling.

In the questionnaire for parents and legal guardians, a module on consumption, with data collected in odd-numbered years, was added. In addition, the question regarding the sources parents or legal guardians use for information on safe Internet use was updated to include the item "in groups of parents or legal guardians of children on social media".

INTERVIEWER TRAINING

The interviews were conducted by a team of trained and supervised interviewers. They underwent basic research training, organizational training, ongoing improvement training, and refresher training. They also underwent specific training for the ICT Kids Online Brazil 2025 survey, which covered the processes of manually and electronically listing census enumeration areas, selecting households, choosing the survey to be conducted, approaching the selected households, and properly completing the data collection instruments. The training also addressed all field procedures and situations, as well as the rules regarding return visits to households.

Interviewers were given three field handbooks, which were available for reference during data collection to ensure the standardization and quality of the work. The first two handbooks provided all the information needed to conduct household listing and selection. The third contained all the information necessary to approach selected households and administer questionnaires.

Data was collected by 319 interviewers and 18 field supervisors.

Data collection procedures

DATA COLLECTION METHOD

Data collection was conducted using computer-assisted personal interviewing (CAPI), which involves a questionnaire programmed in a software system for tablets and administered by interviewers in face-to-face interaction. For the self-completion sections, computer-assisted self-interviewing (CASI) was used, in which respondents use a tablet to answer the questions without the interviewer's involvement.

DATA COLLECTION PERIOD

Data collection for the ICT Kids Online Brazil 2025 survey took place between March and September 2025 throughout Brazil.

FIELD PROCEDURES AND CONTROLS

Various measures were taken to ensure the greatest possible standardization of data collection.

The selection of households to be approached for interviews was based on the number of private households found at the time of listing. Up to four visits were made on different days and at different times in an effort to conduct interviews in households, in case of the following situations:

- no member of the household was found,
- no resident was able to receive the interviewer,
- the selected resident was not able to receive the interviewer,
- the selected resident was not at home,
- denial of access by the gatekeeper or administrator (to a gated community or building),
- denial of access to the household.

It was not possible to complete the interviews in some households even after four visits, as in the situations described in Table 2. In some cases, no interviews were conducted in entire census enumeration areas due to violence, blocked access, weather conditions, and the absence of households in the area, among other issues.

TABLE 2

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Final field occurrences by number of cases recorded

Situations	Number of cases	Rate (%)
Interview completed	27 177	66
Residents were not found or were unable to receive the interviewer	3 436	8
The selected respondent or their parent or legal guardian was not at home or was not available	192	0
Refusal by the person selected or the person responsible	1 319	3
The selected respondent was traveling and would be away for longer than the survey period (prolonged absence)	349	1
Household up for rent or sale, or abandoned	1 461	4
Household used for a different purpose (store, school, summer house, etc.)	765	2
Refusal	1 618	4
Denial of access by gatekeeper or another person	1 733	4
Household not approached because of violence	716	2
Household not approached because of access difficulties, such as blocked access, unfavorable weather, etc.	435	1
Household with people who are unqualified (e.g., under 16 years old) or unable to answer the survey (e.g., due to disability or language)	3	0
Other situations	994	2
Non-existent household	737	2

Throughout the data collection period, weekly and biweekly control procedures were carried out. Every week, the number of municipalities visited, the listed census enumeration areas, and the number of interviews completed were recorded by type of survey in each ICT stratum and census area. Every two weeks, information about the profile of the households was verified, such as income and social class; information about the profile of residents, such as sex and age; use of ICT by the selected respondents; the record of situations for households in which interviews were not conducted; and the number of modules answered in each interview.

In general, it was difficult to achieve the desired response rate in some census enumeration areas with specific features, such as areas with a high incidence of violence and those with a large number of gated communities or buildings, where access to the households was more difficult. In these cases, to motivate residents to participate in the survey, letters were sent via the post office to 448 selected households.

VERIFICATION OF INTERVIEWS

To ensure the quality of the collected data, 8,989 interviews were verified from the ICT Households and ICT Kids Online Brazil surveys, which have shared field operations since 2015. This corresponds to 22% of the total planned initial sample and 33% of the total completed sample. The verification procedures were conducted through on-site visits, listening to audio recordings, and, in some cases, telephone calls.

Whenever corrections were needed to the interviews in part or in their entirety, return calls or visits were carried out, depending on the result of the verification.

DATA COLLECTION RESULTS

A total of 27,177 households in 720 municipalities were approached, representing 66% of the planned sample of 41,145 households. However, during fieldwork it was observed that, after counting households by sector, the sample represented 40,408 households. The response rate was calculated based on the total number of households counted in the selected sectors (Table 3). In 24,535 households, interviews were conducted with individuals who constitute the reference population for the ICT Households survey (people 10 years old or older). In the remaining 2,642 households, interviews were conducted for the ICT Kids Online Brazil survey.

TABLE 3
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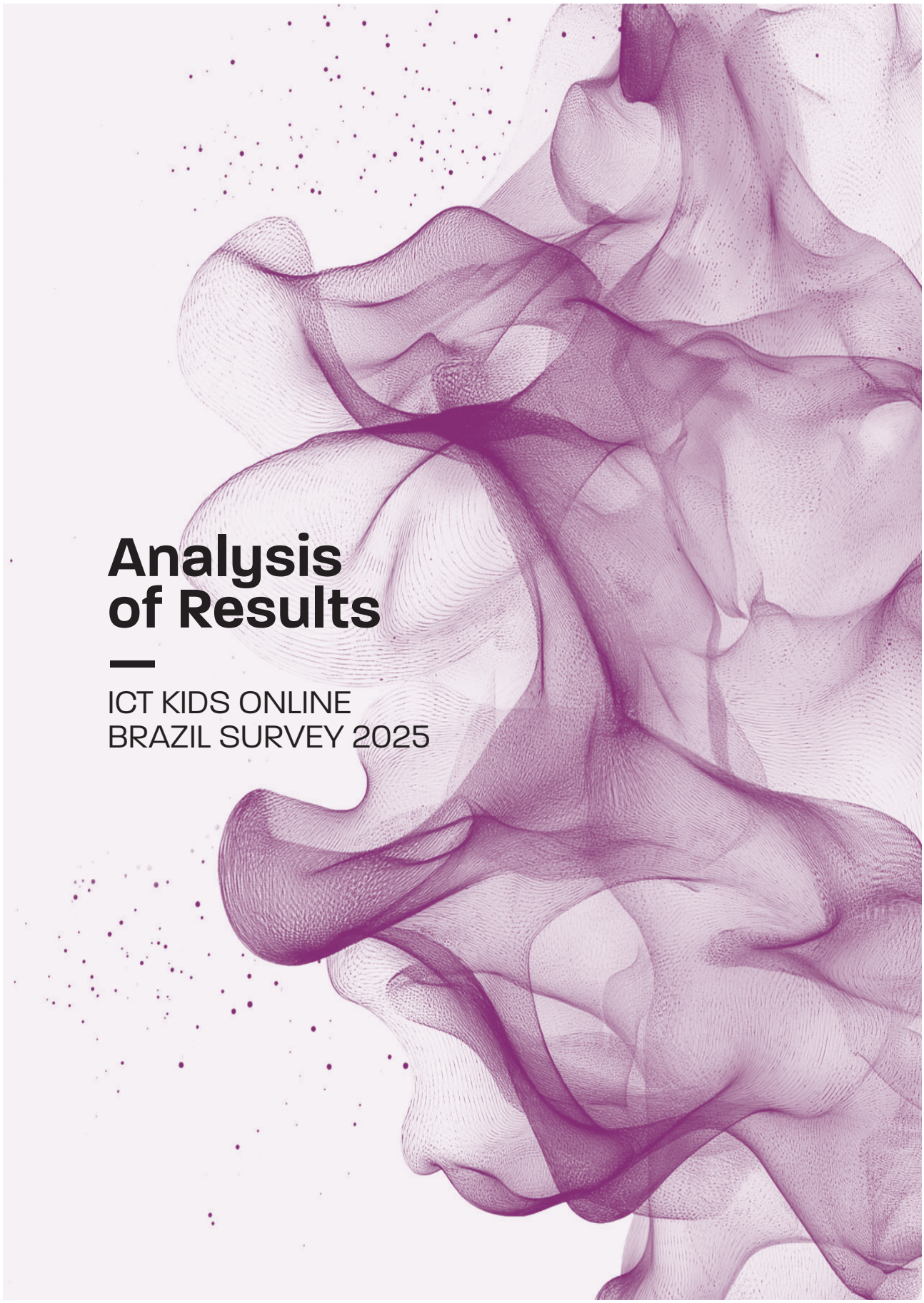
Response rate by federative unit

Federative unit	Response rate (%)
Acre	70
Alagoas	66
Amapá	73
Amazonas	74
Bahia	76
Ceará	60
Federal District	68
Espírito Santo	66
Goiás	64
Maranhão	70
Mato Grosso	66
Mato Grosso do Sul	71

CONTINUES ▶

Federative unit	Response rate (%)
Minas Gerais	56
Pará	67
Paraíba	68
Paraná	61
Pernambuco	71
Piauí	67
Rio de Janeiro	46
Rio Grande do Norte	75
Rio Grande do Sul	56
Rondônia	82
Roraima	68
Santa Catarina	60
São Paulo	56
Sergipe	85
Tocantins	66
Total	**66**



Analysis of Results

ICT KIDS ONLINE
BRAZIL SURVEY 2025

Analysis of Results
ICT Kids Online Brazil 2025

In the face of dynamic and continuous technological transformations, understanding how children relate to their social environments—and how these are shaped and mediated by digital technologies—requires anticipating potential risks and challenges to the promotion and protection of their rights on policy agendas. This is a complex process that requires constant monitoring and updating of analytical and normative frameworks.

Since the creation of the international network of researchers Global Kids Online,[1] the project's objective has been centered on producing internationally comparative evidence on the digital experiences of children, considering both the opportunities and risks associated with Internet use, in light of promoting and ensuring their rights.

In its initial formulation, the conceptual model[2] adopted by the Kids Online research network already acknowledged the influence of individual, social, and national factors on the digital experiences of children (Figure 1). The establishment of an international network at that time responded to the need to understand diverse realities within a global context marked by profound inequalities. Producing robust and comparable data has helped different stakeholders, such as public policymakers, civil society organizations, the private sector, and the academic community, to guide their actions based on evidence, prioritizing the protection and provision of the rights of children.

[1] The Global Kids Online research network emerged as a collaborative initiative between the Innocenti Research Office of the United Nations Children's Fund (UNICEF), the London School of Economics and Political Science (LSE), and the EU Kids Online network, established in 2006.

[2] Although the survey's conceptual framework has been updated over the years, the changes have been primarily in the organization of the digital context. From the outset, the multilevel model has considered the influence of individual factors and social and national contexts on the use of digital technologies by children.

FIGURE 1

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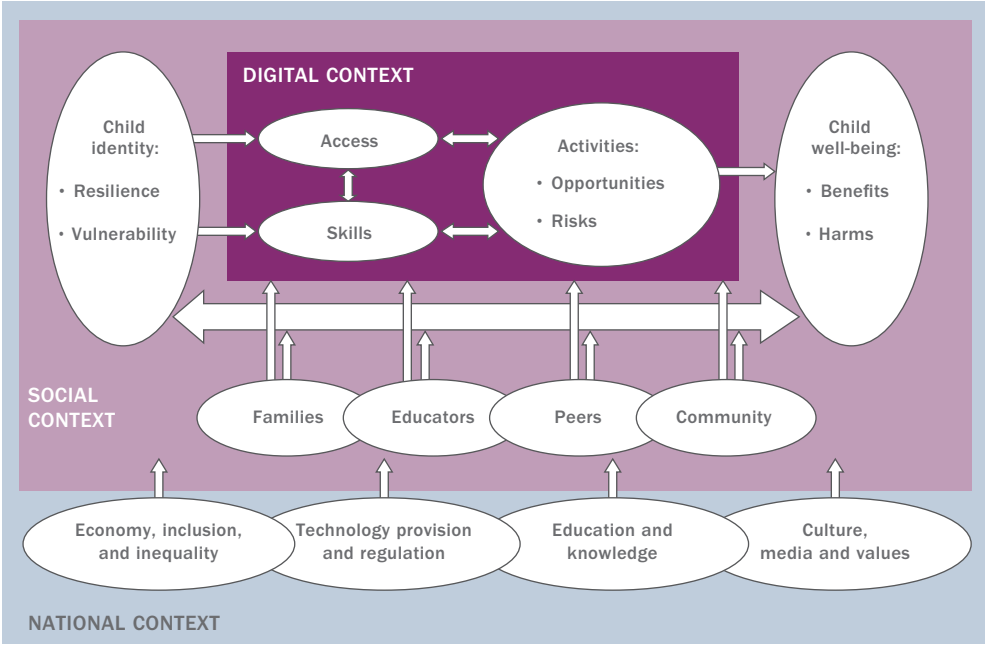
Theoretical framework of the ICT Kids Online survey



Source: Adapted from Livingstone et al. (2015).

Over the years, data produced by national and international research has supported regulations and legislation aimed at promoting the rights of children in the digital environment. Initially, the focus was heavily concentrated on promoting Internet access and on how connectivity conditions would influence both the benefits and risks to which this population is exposed.

Given the increasing use of smartphones and digital platforms by children, coupled with advances in generative Artificial Intelligence (AI) systems, the last decade has seen global intensification of the debate on protecting this population in the digital environment. Meanwhile, national and international studies have begun to point to potential negative effects of excessive or inappropriate use of these technologies on the mental health, well-being, and development of children.

These concerns have fueled demands for actions that would hold digital service enterprises accountable for creating safe and age-appropriate digital environments, as well as for moderating the content and practices present in their services. In this context, players such as families, educators, governments, technology enterprises, and civil society organizations have been called upon to contribute to an atmosphere of shared responsibility for the protection of children.

In Brazil, the last few years have been marked by intense discussions and the adoption of concrete initiatives in this field. Of particular note in the national level is the approval of Law No. 15.100/2025, which establishes restrictions on the use of personal mobile devices by students in public and private basic education establishments. The measure was accompanied by increased public discussion on the excessive use of digital technologies by children, especially regarding its impacts on health, well-being, and learning processes.

Recognizing that measures focused on user behavior do not fully address structural issues—such as the design of digital products and the business models that underpin them—a broader debate has gained momentum, driven by institutions that defend the rights of children and by public players. This movement culminated in Law No. 15.211/2025 (Brazilian Digital Statute of the Child and Adolescent), enacted on September 17, 2025, also known as the Digital ECA.[3]

The new law establishes guidelines for the comprehensive protection of children in the digital environment, with an emphasis on risk prevention, privacy by default, and provider accountability. The main guidelines include the requirement for protective settings by design stage of digital products and services, the adoption of age assurance mechanisms, the provision of parental supervision tools, and the prohibition of targeted advertising based on profiling, as well as the monetization of inappropriate content, and the ban of loot boxes in games targeted at or accessible to this audience. The law also reinforces the duties of transparency, impact assessments, and risk management on the part of service providers.

The Digital ECA came into effect in March 2026, marking a regulatory milestone with the potential to reshape market practices, digital product design strategies, and governance mechanisms. This requires continuous monitoring and systematic production of evidence to assess the law's effects on the online participation of children.

The evidence produced by the ICT Kids Online Brazil survey— such as indicators on the use and ownership of digital devices and platforms, the age of first Internet access, the frequency of online activities, exposure to sensitive content, contact with strangers, and mediation practices, among others—already provides an important set of evidence for monitoring the implementation of the Digital ECA. Additionally, given the recent changes in the regulatory landscape and the digital ecosystem, future editions will include updates of the survey, with the aim of deepening the understanding of this new context, ensuring the continuous production of indicators to inform the improvement of public policies and foster informed debate.

[3] The Brazilian Internet Steering Committee (CGI.br) submitted contributions to the implementation of the Brazilian Digital Statute of the Child and Adolescent (Law No. 15.211/2025), including: (a) contributions to the Public Consultation of the National Data Protection Agency (ANPD), aimed at improving and clarifying terms, concepts and expressions provided for in the new legislation; and (b) recommendations to the public consultation of the Ministry of Justice and Public Security on age verification mechanisms in the digital environment (CGI.br, 2025a, 2025b).

The 2025 edition brings together the historical series of indicators that have underpinned discussions to date, in addition to presenting the main highlights of the most recent data collection. The following is a summary of the results relating to:

- Connectivity and usage dynamics.
- Online activities.
- Online risks: sexual content, consumerism, and marketing content.
- Digital skills.
- Mediation of Internet use.

Connectivity and usage dynamics

By 2025, 92% of Brazilians 9 to 17 years old were Internet users, which corresponded to approximately 24 million children. Among the approximately 2 million non-Internet users, 1.3 million reported having accessed the Internet more than three months prior to the data collection period, and were therefore not considered Internet users according to the criteria of the International Telecommunication Union (ITU) (2020),[4] while approximately 710,000 had never accessed it.

Between 2016 and 2025, the proportion of Internet users in social class C grew by 7 percentage points (pp), from 89% to 96%, as did the proportion among residents of urban areas, which increased from 86% to 93%. The growth was even more pronounced among individuals in classes DE and those residing in rural areas. In both cases, the upward trend had already been observed since the early years of data collection, intensifying during the COVID-19 pandemic. This was especially true in rural areas, which recorded a growth of 10 percentage points between 2019 and 2022 (from 75% to 85%), reaching 89% in 2025, as observed in Chart 1.

[4] According to the ITU definition, Internet users are considered to be people who have used the Internet at least once in the three months prior to the interview (ITU, 2020).

CHART 1

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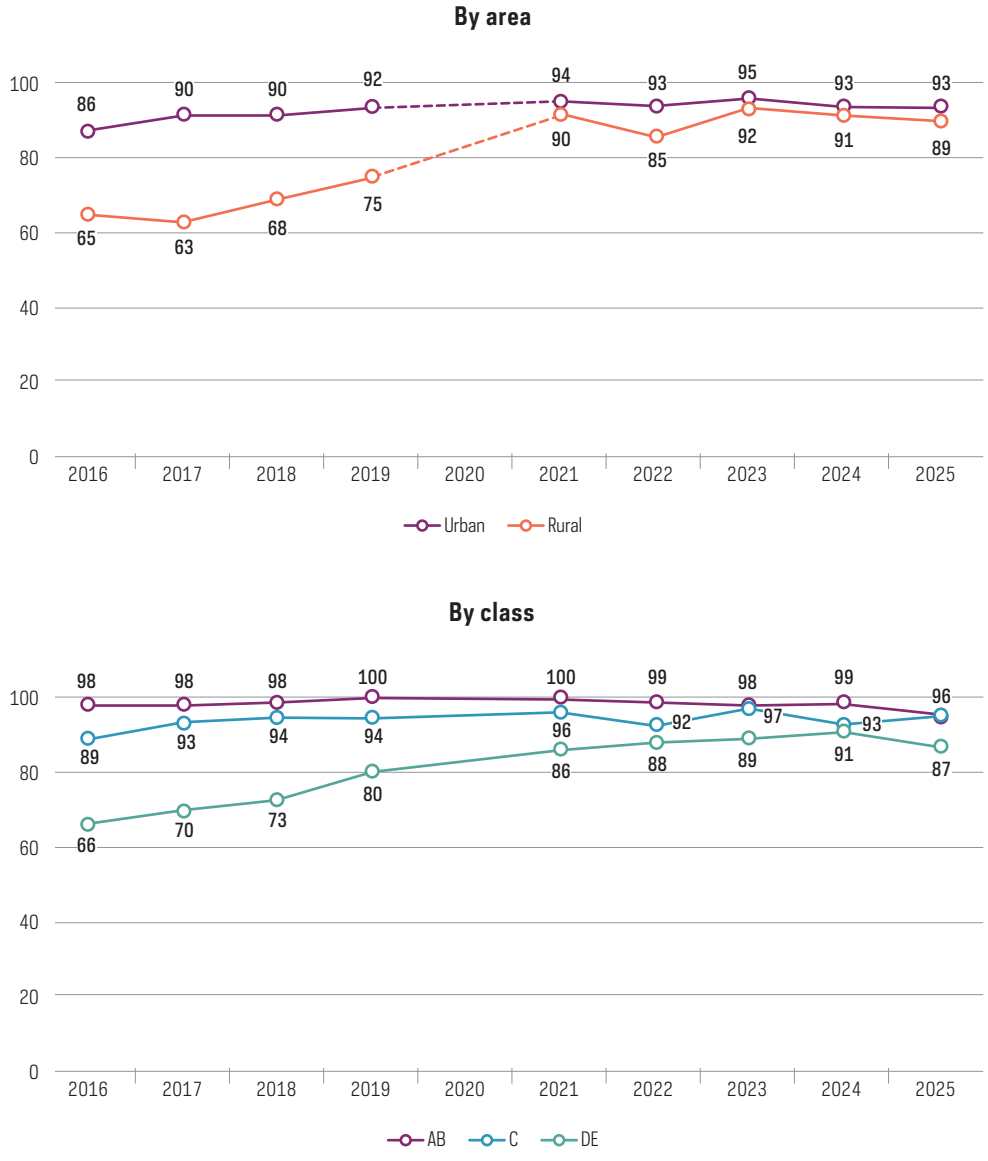
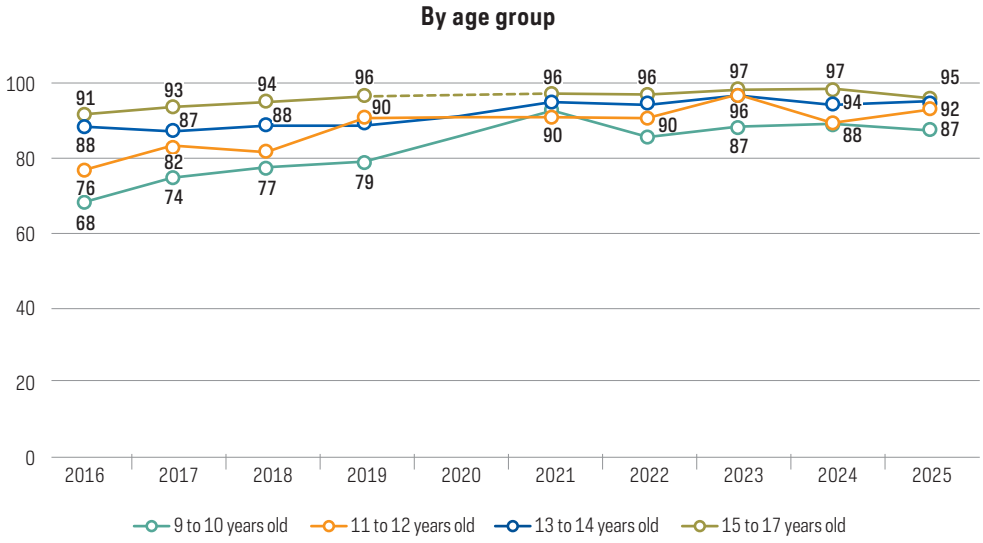
Internet users by area, social class, and age group (2016–2025)

Total population 9 to 17 years old (%)





Considering the age groups analyzed in the survey, more than 90% of individuals 11 to 17 years old were Internet users in 2025—11 to 12 years old (92%), 13 to 14 years old (94%), and 15 to 17 years old (95%). Historically, nearly all adolescents have used the Internet since the beginning of data collection; the proportion of children has grown the most in the last decade. As observed in rural areas, the growth trend over the years intensified during the COVID-19 pandemic, especially among the 9-to-10-year-old population, whose access increased from 79% in 2019 to 92% in 2021, remaining at around 87% until 2025.

In addition to the increase in the proportion of Internet users, a reduction in the age of first access to the Internet has been observed over the years. In 2025, 28% of respondents reported having accessed the Internet for the first time by the age of 6, while 24% did not know at what age they did so. In 2016, these proportions were 10% and 11%, respectively. Conversely, the percentage of individuals who first used the Internet after the age of 12 has been declining throughout the historical series, reaching its lowest level in 2025 (4%, compared to 14% in 2016). The decrease in the age of first access also intensified during the COVID-19 pandemic: Between 2019 and 2022, there was a 7-percentage point increase (from 15% to 22%) in the proportion of children who reported having their first access to the Internet by the age of 6.

BOX 1

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ICT STATISTICS FOR CHILDREN UP TO 8 YEARS OLD

With the aim of generating evidence for the population under 9 years old—age group not covered by the ICT Kids Online Brazil survey methodology—the Regional Center for Studies on the Development of the Information Society (Cetic.br) produces ICT statistics on Internet access, mobile phone ownership and computer use among children up to 8 years of age (CGI.br, 2025c). Over the past decade, Internet use and mobile phone ownership have increased among this population, as has been observed in the Brazilian population 10 years old and older (Brazilian Network Information Center [NIC.br], 2025). Among users 6 to 8 years old, Internet access increased from 41% in 2015 to 84% in 2025, while for those 3 to 5 years old, it grew from 26% to 69%. And among children up to 2 years old, the increase was from 9% to 42%. Mobile phone ownership followed a similar pattern: It was almost twice as high among children 6 to 8 years old (from 18% to 35%) and increased from 6% to 20% among those 3 to 5 years old. Computer use declined from 39% to 24% among children 6 to 8 years old and from 26% to 13% among those 3 to 5 years old.

The growth in online participation among children over the years has fueled public debate about the importance of promoting meaningful connectivity[5]—for which quality standards and the availability of the Internet and digital devices have been established—as a central element for the promotion of the civil, political, and social rights of this population. At the same time, concerns about the risks arising from more intensive use of the Internet have guided policies and actions aimed at the comprehensive protection of children in the digital age.

The data from the ICT Kids Online Brazil survey has been monitoring disparities in access to the Internet and digital devices in different socioeconomic contexts for over a decade. The following section presents the main highlights regarding Internet access conditions for the population 9 to 17 years old in the country, as well as unpublished data on the frequency of use of the investigated devices and the frequency of access from the different locations considered in the research.

This section also presents initial aspects regarding the intersection of access and protection agendas, based on evidence about device ownership and access locations, which will be further explored using data on online practices and risks in subsequent sections.

[5] "Meaningful connectivity" refers to the quality and effectiveness of Internet access. In the NIC.br study, meaningful connectivity is measured using a scale composed of nine indicators derived from the ICT Households survey, grouped into four dimensions: financial accessibility, access to equipment (devices), connection quality, and usage environment (NIC.br, 2024).

ACCESS CONDITIONS

Although there has been an increase in the proportion of Internet users among classes DE, inequalities in access conditions persist when compared to those observed in other socioeconomic strata.

Mobile phones are the primary access devices for children. In 2025, 96% of Internet users 9 to 17 years old connected to the Internet via mobile devices. Internet access was exclusively via mobile phones for 19% of individuals in the investigated age group. Access exclusively via mobile phones was even higher among those in social classes DE (32%).

The second main devices for accessing the Internet for children were televisions (74% in 2025, compared to 43% in 2019), which, since 2019, has been more intense than that done by computers (30% in 2025, compared to 38% in 2019).

Regarding this age group, even though computer use has decreased across all social classes over the years, 69% of users in classes AB reported accessing the Internet via computers in 2025, approximately double the proportion in class C (34%). Among users in classes DE, this proportion was 15%. Similarly, although growth in television use was observed across different socioeconomic contexts, its use remained highest in classes AB (93%), followed by class C (81%) and classes DE (60%). Differences were also observed in Internet access via video game consoles, reported by 45% of users in classes AB, 16% in class C, and 9% in classes DE.

To better qualify the data on the different access devices used by children, the ICT Kids Online Brazil survey, for the first time, collected information on the frequency of use of each device investigated. Daily computer use was 32% for users in classes AB, and weekly use was 22%. For class C, daily computer use was reported by 16% of individuals. Weekly computer use in class C was 7%, the same proportion reported for daily use of the devices among members of classes DE (Chart 2).

In the case of televisions, the proportion of daily use was more than two-thirds for users in both classes AB (68%) and class C (67%). Among users in classes DE, almost half (49%) used televisions to access the Internet daily. Although disparities were also noted regarding Internet access via televisions, the frequency of use was more balanced than that observed with computers, for which the intensity and frequency of use were more unequal, depending on the socioeconomic context.

CHART 2

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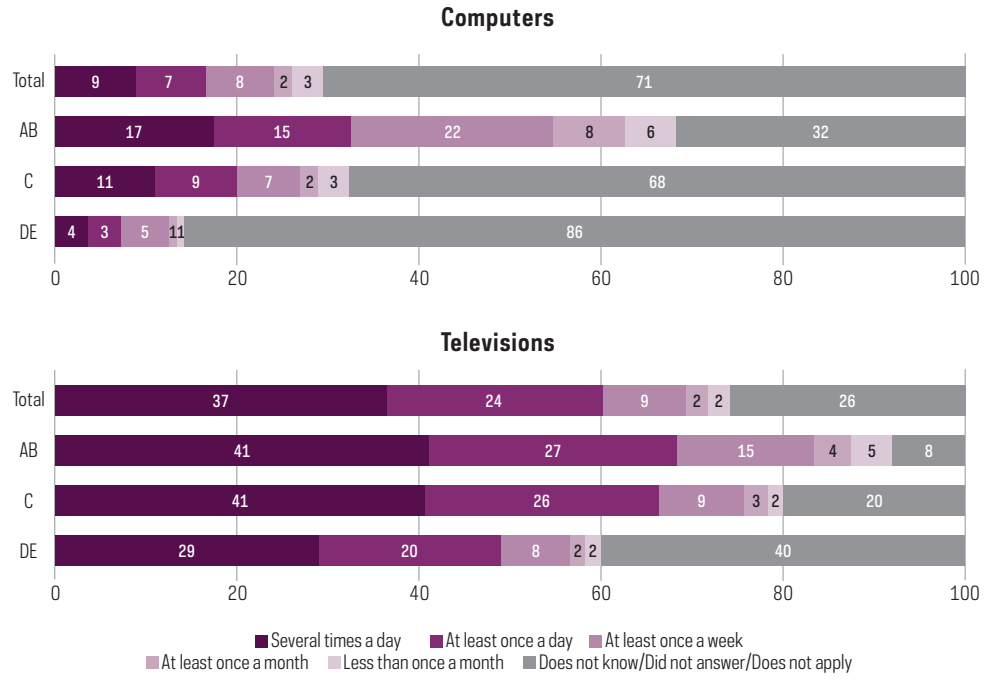
Frequency of devices used to access the Internet—computer and television, by social class (2025)

Total number of Internet users 9 to 17 years old (%)



Considering mobile phones, in addition to Internet access via these devices being widespread among almost all Internet users 9 to 17 years old, daily use reached 90% of this population. For children 15 to 17 years old, this proportion was 98%, while for children 9 to 10 years old, it reached 82%. Unlike the other devices, no significant differences were observed across socioeconomic classes.

Regarding Internet access locations, at home (99%), followed by someone else's home (86%), were the main places where children used the Internet in the country. For the first time, the survey also investigated the frequency of Internet access in different locations (Chart 3). The home was the place of daily access (95%) for almost the entire population investigated. Slightly less than a third of users went online at someone else's home several times a day (29%), while a quarter accessed it at least once a day (25%).

CHART 3

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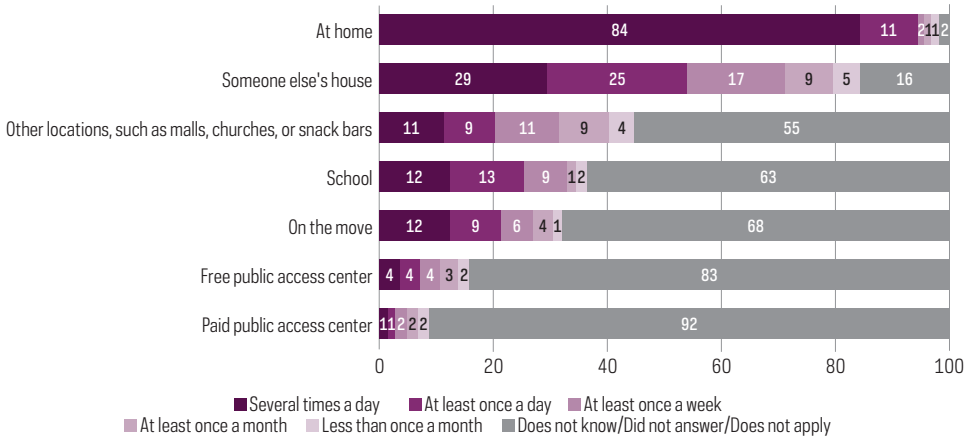
Frequency of Internet access location (2025)

Total number of Internet users 9 to 17 years old (%)



Unlike the other locations investigated, where Internet access remained stable relative to previous editions of the survey, usage at school has varied in recent years. In 2023, 44% of users 9 to 17 years old accessed the Internet at school; in 2024, that proportion exceeded 50% (51%); however, in 2025, this percentage decreased to 37%.

The proportion of Internet access at school was higher among children 15 to 17 years old (64%) than for those 13 to 14 years old (28%), children 11 to 12 years old (17%), and those 9 to 10 years old (23%). Among users who reported accessing the Internet at school, 12% did so several times a day, 13% at least once a day, and 9% at least once a week.

The decline in Internet access in schools has occurred in the context of the implementation of Law No. 15.100/2025, which came into effect on January 13, 2025,[6] restricting the use of personal mobile devices by students during classes, recess, and breaks, for all stages of basic education nationwide.

Public measures restricting the use of personal mobile devices in schools may also have influenced the decisions of children's parents or legal guardians in the private sphere of their homes, contributing to a downward trend in the ownership of personal mobile phones, especially among younger children. In 2025, 55% of users 9 to 10 years old reported owning their own mobile phones, compared to 67% in 2024. Among those 11 to 12 years old, there was a 10 percentage point drop compared to 2024 (79% to 69%). For adolescents, the proportions remained more stable, with mobile phone ownership reported by 78% of individuals 13 to 14 years old (77% in 2024) and by 95% of those 15 to 17 years old (93% in 2024).

[6] The ICT Kids Online Brazil 2025 survey was conducted from March to October 2025, following the implementation of Law No. 15.100/2025.

The following sections present evidence on the opportunities and risks reported by children in 2025. Among the indicators analyzed, the stand-outs were those that spurred public discussions, resulting in measures aimed at promoting the rights of this population in the digital environment as well, such as the approval of the Digital ECA.

Online activities

Seeking information is one of the most common online activities performed by children. Among Internet users aged 9 to 17, 81% reported looking up information on the Internet for schoolwork, and 70% reported looking up information about topics that interest them. For children 15 to 17 years old, 64% said they had read or watched the news online, while in other age groups, less than half had engaged in this activity.

However, the results showed that the production and sharing of content did not reach the same level observed for its consumption. In an unprecedented initiative , the ICT Kids Online Brazil survey asked children about creating and sharing videos, songs, or images, as well as sharing ideas and thoughts online—activities carried out by 33% and 20% of users 9 to 17 years old, respectively. The sharing of original content was higher among adolescents, as can be seen in Chart 4.

CHART 4

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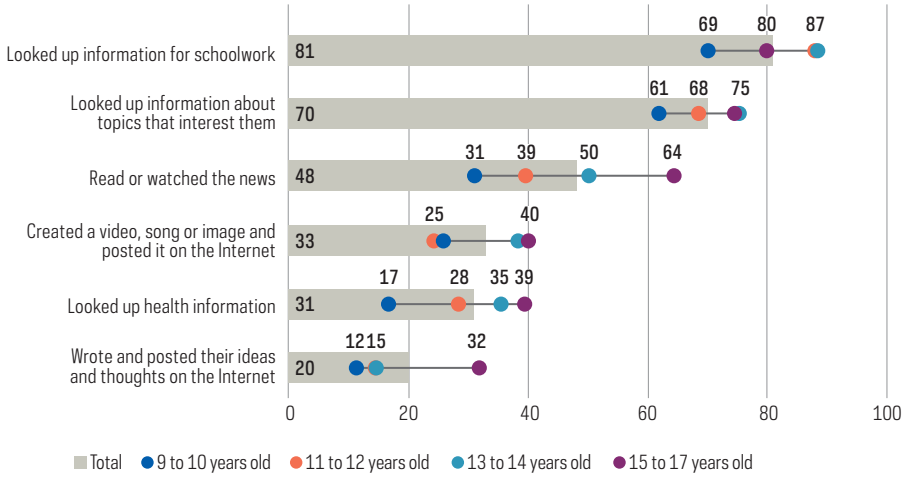
Activities carried out on the Internet, by age group (2025)

Total number of Internet users 9 to 17 years old (%)



HEALTH AND WELL-BEING

In 2025, more than 30% of users 15 to 17 (39%) and 13 to 14 (35%) years old searched for health-related information on the Internet. The proportions were 28% for the 11-to-12-year-old audience and 17% for those 9-10 years old.

In addition to searching for information, the ICT Kids Online Brazil survey also investigates the online engagement of users 11 to 17 years old with various topics related to health and well-being. Among children 15 to 17 years old, the most viewed health content was about ways to have a healthy diet, such as information about diets or healthy meals (66%), information about exercise, sports, or getting fit (51%), and the prevention and treatment of illnesses and injuries (40%). Half of the population 11 to 12 years old stated that they had seen content about healthy eating (50%). In addition, about 3 in 10 users in this age group reported having seen information about exercise or how to get fit (33%), as well as about health problems (27%).

In this population, the biggest differences between older and younger individuals in their engagement with health topics concerned content related to feelings, mental health, emotional distress, or well-being—mentioned by 34% of users 15 to 17 years old, compared to 12% of those 11 to 12 years old—and information or discussions about sexuality, such as sexual health or sex education, viewed by 31% of individuals 15 to 17 years old and 4% of those 11 to 12 years old.

Although access to health information is associated with benefits and the promotion of care practices (Instituto Vita Alere, 2026), there are concerns about potential risks, especially regarding access to inadequate, inaccurate, or false online content.

Approximately half of users 11 to 17 years old said they had used the Internet to deal with a health problem (49%, compared to 39% in 2022). The use of the Internet for this purpose grew across all age groups between 2022 and 2025, increasing from 30% to 40% among those 11 to 12 years old, from 40% to 47% among users 13 to 14 years old, and from 43% to 56% among those 15 to 17 years old.

Using the Internet to communicate with others and access official and reliable channels can also help children find support and appropriate information to deal with emotional or physical health issues. On the other hand, access to unreliable channels, interaction with strangers, and conversations with AI bots can increase health risks by exposing children to inaccurate, incorrect, or false information, inadequate guidance, or vulnerable situations (American Psychological Association [APA], 2025).

Considering the spread of AI and the potential for both opportunities and risks associated with its use in conducting research, creating content, and seeking emotional support among children, this survey investigated, for the first time, the use of generative AI tools by this population. The results of this investigation are presented below.

USE OF GENERATIVE AI

The popularization of digital platforms that offer automated resources for content production and access has boosted the use of generative AI tools among children. These technologies have been incorporated into the educational context by teachers and students (CGI.br, 2025d) and at home, for conducting research and creating texts, images, or videos.

However, the increased adoption of these tools by children has raised concerns about exposure to inappropriate content and impacts on the development of critical thinking, privacy, and data protection.

As historically observed in research on the digital practices of children (Global Kids Online, 2019; Trucco & Palma, 2020), the consumption of online content outweighed content creation, even in the case of activities mediated by generative AI tools. According to the survey, 59% of Internet users 9 to 17 years old stated that they used generative AI tools to carry out school research or study, 42% to search for information, and 21% for creating content such as texts, images, videos, or programming code.

Beyond instrumental or exploratory purposes, some children use AI-based tools as a form of socioemotional support, attributing to chatbots the role of providing companionship in situations of loneliness or vulnerability (Staksrud et al., 2026). In Brazil, among users 9 to 17 years old, 10% reported using generative AI tools to talk about personal problems or their emotions.

The use of generative AI tools that simulate conversations can pose risks to children by presenting inaccurate answers or answers influenced by confirmation bias, in addition to raising privacy challenges (Internet Matters, 2025). In this context, specific regulations can guide the creation of age-appropriate environments, the protection of this population's data, and the development of resources that facilitate responsible adult monitoring of the content accessed by this population.

In 2025, 65% of respondents used generative AI for at least one of the purposes investigated. As with other online activities, the use of these tools was greater among adolescents (Chart 5). Three-quarters of users 15 to 17 years old and 13 to 14 years old employed generative AI for one of the purposes described above, proportions that were 62% for users 11 to 12 years old and 42% for those 9 to 10 years old.

CHART 5

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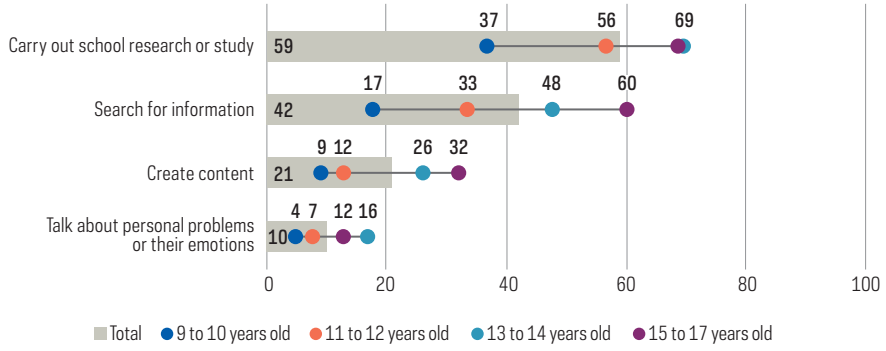
Use of generative AI, by age group (2025)

Total number of Internet users 9 to 17 years old (%)



The use of generative AI by a majority of children indicates the rapid incorporation of these technologies in mediating their daily activities. This phenomenon brings the use of these resources closer to practices that are widespread in the digital environment, such as multimedia activities, which will be examined in the following section.

MULTIMEDIA ACTIVITIES

In addition to searching for information, children frequently use the Internet to carry out multimedia activities, such as playing games online (70%) and watching videos (98%).

In 2025, 33% of Internet users 9 to 17 years old reported playing games online more than once a day, 22% at least once a day, and 10% at least once a week. Unlike what has been observed over the years for online practices in education, communication, and digital citizenship, no significant differences were perceived in the frequency and intensity with which children play games on the Internet.

Around 70% of users 9 to 10 years old (73%), 11 to 12 years old (71%), and 13 to 14 years old (76%) played games online in 2025. Among those 15 to 17 years old, the proportion was 63%.

Among the multimedia activities investigated, the ICT Kids Online Brazil survey also analyzes the consumption of online videos, a practice that occupies a central position in the digital daily lives of children (Office of Communications [Ofcom], 2022; Rideout & Robb, 2021). In the 2025 edition, the survey began, for the first time, to differentiate the types of videos watched, allowing for a more in-depth analysis of the audiovisual content consumed by this population (Chart 6).

Among the types of videos investigated, those from digital influencers, as well as series, films, or programs on the Internet, were the most accessed, both by 80% of users 9 to 17 years old. However, daily consumption was higher for influencers (68%), compared to series, movies, or TV programs online (60%). Next, we find tutorials on the Internet (74%)—watched daily by 53% of users—and videos of people playing video games (52%)—consumed daily by about four in ten children and teenagers (38%).

CHART 6

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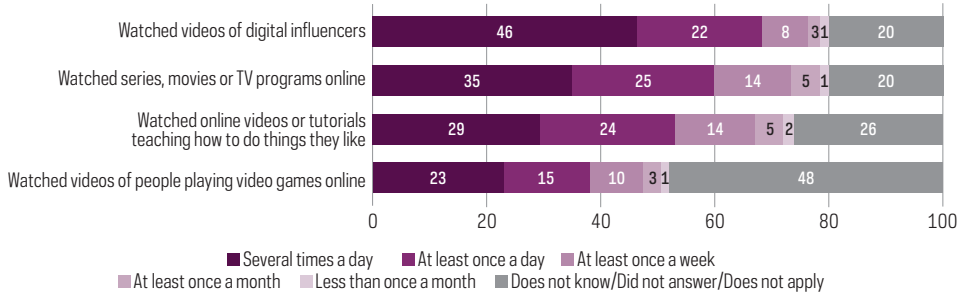
Multimedia activities on the Internet: video consumption, by type and frequency (2025)

Total number of Internet users 9 to 17 years old (%)



Considering the total number of users who reported watching each type of video investigated, there was no significant difference in frequency[7] for those who watched series, movies, or TV programs on the Internet (44%), videos of people playing video games (44%), and tutorials (40%) more than once a day. Videos from digital influencers were viewed more frequently by users who engaged in this practice, with 58% reporting that they watch them more than once a day.

In addition to greater access to digital devices and the expansion of connectivity, the diversification and popularization of digital platforms also influence the consolidation of more intensive and frequent multimedia consumption habits among children (van der Wal et al., 2024).

It is in this context that the ICT Kids Online Brazil survey investigates the frequency of use and ownership of profiles by the 9–to-17year-old population on certain digital platforms. The following are the main highlights of the 2025 edition.

[7] For this analysis, only users 9 to 17 years old who watched each type of video were considered, and not the total number of Internet users in that age range, as shown in Chart 6.

DIGITAL PLATFORMS

In 2025, 33% of children 9 to 10 years old reported using social media in the 12 months prior to the interview. Among users 11 to 12 years old, this proportion was 63%. For children 13 to 14 years old and 15 to 17 years old, the percentage reached 89%, showing greater participation in these environments as age increases.

Between 2017 and 2021, there was an increase in the use of social media by users 9 to 14 years old, reflecting the greater presence of the younger population on digital platforms during the COVID-19 pandemic (Chart 7). On the other hand, between 2021 and 2025 there was a reduction of 15 percentage points (from 48% to 33%) among users 9 to 10 years old. This movement may indicate a decrease in the intensity of social media use in this age group, a trend that may or may not be confirmed in future editions of the survey.

CHART 7

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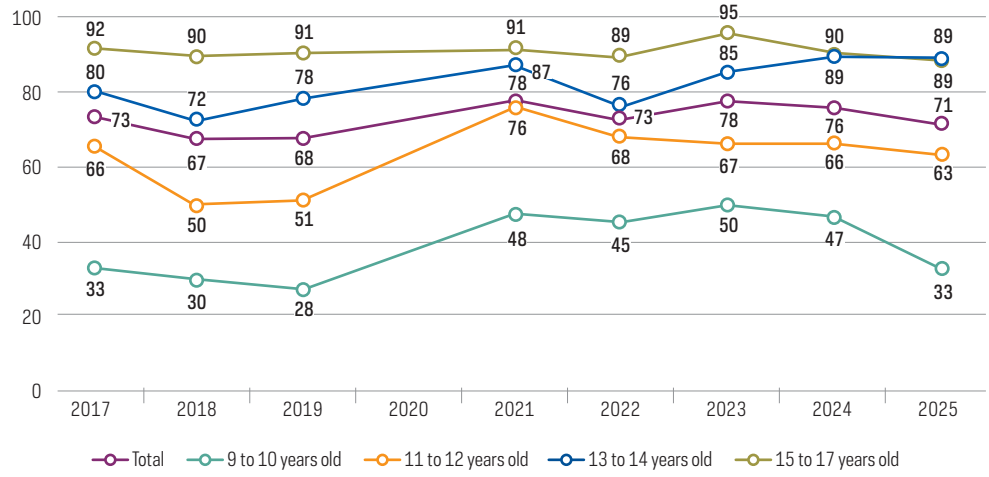
Multimedia activities on the Internet: use of social media, by age group (2017–2025)

Total number of Internet users 9 to 17 years old (%)



In addition to being interviewed about their general use of social media, the research also investigates the frequency of access to specific platforms. By 2025, approximately two-thirds of Internet users 9 to 17 years old reported accessing WhatsApp (68%) and YouTube (66%) "several times a day" or "every day or almost every day," making them the most frequently used platforms among this population. At lower levels, although still close to 60%, were Instagram (59%) and TikTok (57%).

Following the trend of declining Facebook usage over the years, 8% of users reported accessing the platform "multiple times a day" or "every day or almost every day," proportions of 6% for Discord and 3% for X (formerly Twitter).

In general, younger users accessed each of the analyzed digital platforms less frequently[8] (Chart 8). Only YouTube showed a distinct pattern. About three-quarters of the population 9 to 10 years old (74%) and 11 to 12 years old (79%) reported frequent use of the platform. Among children 15 to 17 years old, this percentage was lower, and about half (52%) were frequent YouTube users.

CHART 8

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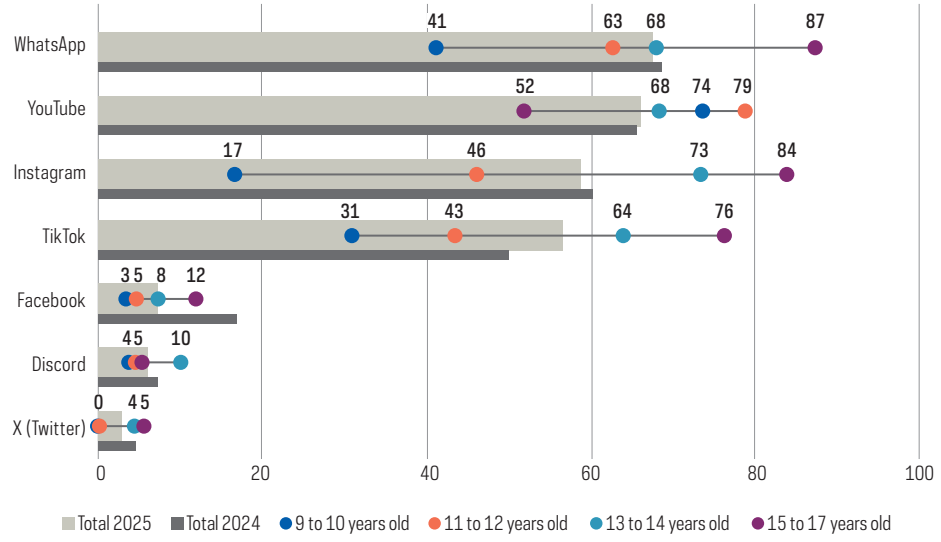
Frequency of use of digital platforms, by age group (2025)

Total number of Internet users 9 to 17 years old (%)

***"Several times a day" and "Every day or almost every day"**



Considering the different age groups, in 2025 WhatsApp was the most used platform across all groups (68%), with progressive growth among those 9 to 10 years old (41%) up to those 15 to 17 years old (87%). Although adolescents were the most frequent users of both Instagram and TikTok, there was a reversal in the pattern of platform usage between children and teenagers. For younger children, 9 to 10 years old, TikTok usage (31%) surpassed that of Instagram (17%). Among users 13 to 14 years old, Instagram (73%) showed a higher frequency of use (64% for TikTok), and this was consolidated at higher levels among teenagers 15 to 17 years old (84%), compared to TikTok (76%).

[8] For the purposes of analysis, the response categories "Several times a day" and "Every day or almost every day" were considered.

In light of the evidence, it is observed that the usage profile of different digital platforms varies according to age group. Among children 9 to 12 years old, YouTube stands out as the main access platform, followed by the WhatsApp messaging app, whose adoption intensifies from 13 years old onwards. As people get older, platforms focused on consuming and sharing short videos, such as Instagram and TikTok, become more relevant. Conversely, networks like Facebook and X (formerly Twitter) have seen a decline in usage among this population over the years.

In addition to investigating the use of digital platforms, the survey also monitors the ownership of personal profiles by children in these environments, contributing to the creation of safer and more age-appropriate digital services. For this purpose, weekly users of each network who reported having their own profiles were analyzed (Chart 9).

Among the weekly users surveyed, 66% reported having their own profiles on WhatsApp, 66% on Instagram, 57% on TikTok, and 50% on YouTube.

CHART 9

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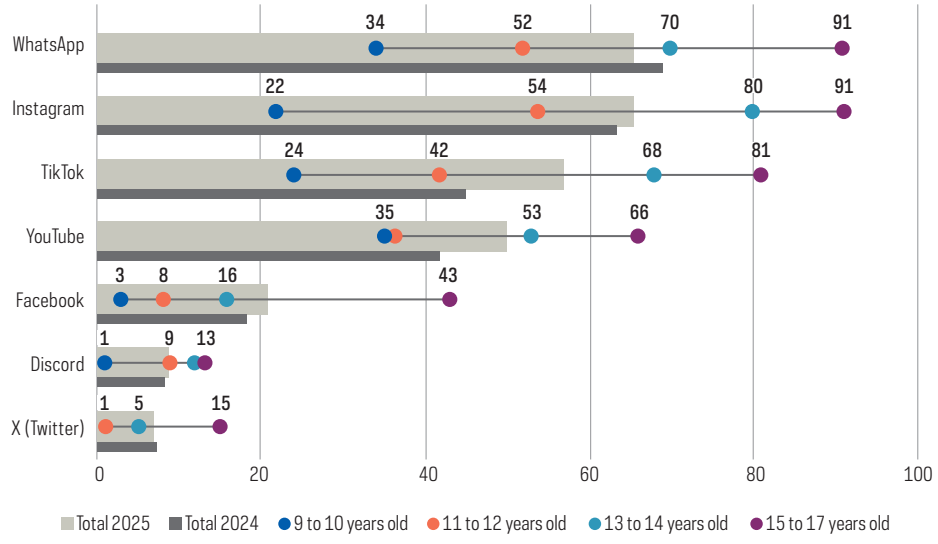
Ownership of profiles on digital platforms—weekly usage, by age group (2025)

Total number of Internet users 9 to 17 years old (%)



The Digital ECA establishes obligations aimed at preventing the inappropriate access to, and use of, digital products and services by children. To comply with the legislation, platforms must implement age assurance mechanisms, ensuring that users have experiences appropriate to their age group. Furthermore, they must adopt transparency measures regarding account identification policies, detailing the methods used, the results of impact assessments, and the identification/management of safety and health risks.

In this context, ICT Kids Online Brazil has been monitoring aspects related to these guidelines for several years, such as the ownership of personal profiles and the presence of children on different platforms, offering a consistent empirical basis for monitoring the implementation and effects of these legal requirements.

Following the enactment of the Digital ECA, the ICT Kids Online Brazil survey will continue to monitor these indicators, allowing for the evaluation, over time, of possible changes in the digital practices of children and the effects of these policies on participation in digital platforms and the ownership of profiles among the population 9 to 17 years old.

Online risks: sexual content, consumerism, and marketing content

The ICT Kids Online Brazil survey monitors online risk situations reported by the population 9 to 17 years old in the country, based on the risk typology adopted by the Children Online: Research and Evidence (CO:RE) project. According to this model (Figure 2), children may be exposed to content or situations of a violent, sexual, and commercial nature, as well as being victims, witnesses, or perpetrators of offensive or discriminatory conduct. Participation in digital environments can also entail risks to user privacy and integrity, including those arising from contracts and practices adopted by providers of digital products and services (Livingstone & Stoilova, 2021).

The evidence produced by the survey has supported the formulation and improvement of public policies aimed at protecting children in the digital environment. This includes regulatory initiatives and guidelines on the use of digital devices,[9] while also contributing to the regulatory debate.[10]

[9] On March 11, 2025, the federal government released the publication *Children and screens: a guide on the use of digital devices* (Crianças, adolescentes e telas: guia sobre uso de dispositivos digitais). Cetic.br|NIC.br was part of the group responsible for developing the material, which was also based on indicators produced by the ICT Kids Online Brazil and ICT in Education surveys. The guide is available at: https://www.gov.br/secom/pt-br/assuntos/uso-de-telas-por-criancas-e-adolescentes/guia

[10] Data regarding the use of social networks from the ICT Kids Online Brazil 2022 survey supported the investigation into possible irregularities in the handling of personal data of children on the TikTok platform, conducted by ANPD. The Technical Note published by ANPD in November 2024 can be consulted at: https://www.gov.br/anpd/pt-br/assuntos/noticias/nota-tecnica-50_pub_0153891.pdf

With the increased use of digital products and services, both the complexity of monitoring and the exposure of children to potential risks have grown. In this context, understanding the different types of online risks is central to designing regulatory, technical, and social interventions aimed at mitigating harm, reinforcing the importance of the continuous production of evidence.

FIGURE 2

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CO:RE Online Risk Classification for Children

	Content	Contact	Conduct	Contract
	(Child engages with or is exposed to potentially harmful content)	(Child experiences or is targeted by potentially harmful adult contact)	(Child witnesses, participates in or is a victim of potentially harmful peer conduct)	(Child is party to or exploited by potentially harmful contract)
Aggressive	Violent, gory, graphic, racist, hateful or extremist information and communication	Harassment, stalking, hateful behaviour, unwanted or excessive surveillance	Bullying, hateful or hostile communication or peer activity e.g. trolling, exclusion, shaming	Identity theft, fraud, phishing, scams, hacking, blackmail, security risks
Sexual	Pornography (harmful or ilegal), sexualization of culture, oppressive body image norms	Sexual harassment, sexual grooming, sextortion, the generation and sharing of child sexual abuse material	Sexual harassment, non-consensual sexual messaging, adverse sexual pressures	Trafficking for purposes of sexual exploitation, streaming (paid-for) child sexual abuse
Values	Mis/disinformation, age-inappropriate marketing or user-generated content	Ideological persuasion or manipulation, radicalisation and extremist recruitment	Potentially harmful user communities e.g. self-harm, anti-vaccine, adverse peer pressures	Gambling, filter bubbles, micro-targeting, dark patterns shaping persuasion or purchase
Cross-cutting	Privacy violations (interpersonal, institutional, commercial) Physical and mental health risks (e.g., sedentary lifestyle, excessive screen use, isolation, anxiety) Inequalities and discrimination (in/exclusion, exploiting vulnerability, algorithmic bias/predictive analytics)			

Source: Livingstone & Stoilova (2021).

The 2025 edition of the ICT Kids Online Brazil survey analyzed risks related to exposure to sexually explicit and commercial content in the digital environment. The key findings are presented below.

ONLINE SEXUAL CONTENT

By 2025, 8% of Internet users 9 to 17 years old reported having been exposed to sexually explicit images or videos online. The proportions were higher for boys (12%) compared to girls (4%). It is also observed that the percentage of those who report being exposed to such content increases with age, since children 15 to 17 years old had greater contact (13%), compared to those 11 to 12 (6%) and 13 to 14 (7%) years old.

When asked if they had felt bothered after being exposed to images or videos of sexual content, 3% of Internet users 9 to 17 years old answered affirmatively, which in absolute numbers equates to approximately 724,000 individuals in that age group. Among children 15 to 17 years old, this proportion was 5%, which corresponds to approximately 423,000 individuals.

Among users 11 to 17 years old, 20% received messages or requests for sexual content. Of those, 11% said they had received messages with sexual content; 11% saw sexual content messages that were posted for others to see; 4% received requests to send nude photos or videos; and 2% were asked to talk about sex. However, similarly to exposure to sexual content, these situations were more common among users 15 to 17 years old, with proportions of 9% and 4%, respectively.

Preventing access to and misuse of digital products and services is also one of the guidelines of the Digital ECA, which requires that digital services to be designed in a way that reduces children's contact with inappropriate content. In this context, the provision of resources or integration with emotional support and well-being services is also foreseen, as well as offering accessible channels for receiving complaints.

Additionally, with a view to protection against potentially harmful interactions, features should be provided that restrict or control contact with strangers on online gaming platforms, ensuring the participation and consent of parents or legal guardians.

BOX 2

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SURVEY *DISRUPTING HARM IN BRAZIL: EVIDENCE ON TECHNOLOGY-FACILITATED CHILD SEXUAL EXPLOITATION AND ABUSE*

UNICEF Innocenti, in partnership with End Child Prostitution, Child Pornography and Trafficking of Children for Sexual Purposes (ECPAT International) and the International Criminal Police Organization (INTERPOL), and with funding from Safe Online, launched in March 2026 the report *Disrupting Harm in Brazil: Evidence on technology-facilitated child sexual exploitation and abuse* (ECPAT et al., 2026).[11] The publication highlights risks, patterns, and challenges for the prevention and tackling of sexual abuse and exploitation in the digital environment.

The study reveals that, in one year, 19% of Brazilian children 12 to 17 years old reported being victims of technology-facilitated sexual exploitation and/or abuse. In almost half of the cases (49%), the exploitation and/or abuse was committed by someone known to the victim. Furthermore, 34% of these children stated that they had not told anyone about the situations that occurred.

Alongside the evidence produced over the years by the ICT Kids Online Brazil survey, this study contributes to strengthening the country's actions in combating crimes against children in the digital environment.

CONSUMPTION AND MARKETING CONTENT

In addition to sexually explicit content, the presence of children in online spaces that do not consider their needs and vulnerabilities can increase the risks associated with contact with advertising and marketing.

More than half of Internet users 11 to 17 years old said they had been exposed to some form of advertising or marketing on social media (55%), television (52%), and video websites (52%). Exposure on gaming websites was reported by 26% of these users. Exposure to this type of content on social media was higher among children 15 to 17 years old (64%) compared to those 11 to 12 years old (42%).

Unlike traditional media, such as magazines and television, in the digital environment marketing content is frequently integrated with entertainment content on video platforms, games, websites, and social networks, often without a clear identification of its commercial purpose. In this context, the risks of advertising influencing the behavior and values of children tend to be amplified (Sweeney et al., 2022).

Contact with videos, photos, or texts on the Internet in which products and/or brands were advertised, without necessarily being identified as advertising, was reported by 84% of users 11 to 17 years old. Among the content formats, the most viewed by this population were those with people unboxing products (66%), teaching how to use them (65%), or showcasing products given by brands (61%). Furthermore, more than half of those interviewed reported seeing people going to stores or events to showcase products or brands (54%) and carrying out challenges or playing with products or brands (52%). Additionally, 39% of users reported seeing videos, photos, or texts in which they were promoted through prize drawings or contests.

[11] The study methodology consisted of household surveys conducted by Ipsos Brazil and interviews with justice system professionals, frontline workers, and children, in addition to qualitative analyses carried out by the Brazilian Center for Analysis and Planning (CEBRAP), in collaboration with Cetic.br|NIC.br.

In an unprecedented approach, the survey investigated the exposure of the 11-to-17-year-old population to videos and images in which people promoted gambling games. More than half of the users stated that they had been exposed to this type of content (53%), a proportion that reached 63% among children 15 to 17 years old.

Exposure to advertising can also stimulate the active search for specific items, reinforcing interest in products or brands. In this context, more than half of children 15 to 17 years old (52%) stated that they had searched for information about products or brands online.

Among users 9 to 17 years old, 63% stated that they had searched the Internet for the purpose of buying or checking the prices of certain products. This percentage was higher among children 15 to 17 years old (72%) and for those 13 to 14 years old (72%). Among users 11 to 12 years old, the proportion was 60%, while in the 9 to 10 age group it was 42%.

In addition to research, engagement with brands on digital platforms was also observed. In 2025, 37% of users 11 to 17 years old reported following the online pages or profiles of products or brands on the Internet, and 26% stated that they liked or shared videos, photos, or texts about brands on the Internet.

The exposure and interaction of children with marketing content can also generate demands directed at families for the purchase of certain products. According to the statement from parents and legal guardians, about half of children 9 to 17 years old asked for a product after exposure to online advertising (51%). Clothes and shoes (36%), electronic equipment (24%), food, drinks or sweets (23%) and school supplies (23%) were the most requested products, followed by games or video games (17%), toys (17%), makeup or beauty products (17%), and books, magazines or comics (15%). According to their parents or legal guardians, 10% of users 9 to 17 years old asked for virtual currency and in-game currency.

Advertising aimed at children can reinforce gender stereotypes, an aspect evidenced by the differences in the types of products that parents or legal guardians of girls and boys reported their children requested. They reported that, after being exposed to online advertising, 33% of girls requested school supplies and 20% requested books, while among boys the proportions were 13% and 9%, respectively. On the other hand, 27% of boys requested games or video games and 15% requested virtual currency or money for games; these proportions were 8% and 5% for girls.

Spending money on online games has intensified among children in recent years, highlighting the growing inclusion of this audience in digital consumption dynamics. Over the past decade, there has been an increase of more than 10 percentage points among individuals 11 to 17 years old who reported making purchases or using real money to advance to the next level or acquire items in online games, rising from 10% in 2015 to 21% in 2025.

According to parents and legal guardians, 45% of users 9 to 17 years old were exposed to online advertising or publicity considered inappropriate for their age group. Given this scenario in which the use of persuasive design strategies influences consumer decisions, especially among developing users, they reported having adopted different strategies for guiding their children regarding the advertisements viewed online. Approximately three-quarters of users in this age group stated that they had parents or legal guardians

who talked to them about brand or product advertisements seen on the Internet (76%), explained the objective of the advertising (75%), and told their children not to watch certain types of advertising (74%). Slightly more than half (55%) stated that their parents or legal guardians sat with them or stayed around while their children saw brand or product advertising on the Internet.

However, it was observed that such guidelines tend to decrease with advancing age. Among those responsible for children 9 to 10 years old, approximately 82% stated that they guided them regarding online advertising, 86% explained its objectives, and 78% imposed restrictions on certain advertising content. Among children 15 to 17 years old, these proportions dropped to 67%, 64%, and 63%, respectively.

While family guidance is important in making children aware of the risks and strategies of online advertising, protecting this audience cannot depend solely on it. Digital service providers must adopt concrete measures to prevent commercial content from being targeted at children and to adopt ethical design standards, ensuring g age-appropriate digital experiences aligned with children's rights (5Rights Foundation, 2024).

The Digital ECA establishes that the use of profiling techniques to target commercial advertising to this audience is prohibited, as is the monetization or boosting of content that portrays children in contexts specific to the adult world. This reinforces the obligation of enterprises to guarantee safe and age-appropriate digital environments.

Digital skills

Adolescents' perceptions of their critical thinking skills reinforce the need for guidance and regulation in accessing advertising content. Although 72% of users 11 to 17 years old recognized that "enterprises pay people to use their products in the videos and content they publish on the Internet," 54% stated that it was "true" or "very true" that they knew how to differentiate sponsored content from non-sponsored content. Among users 11 to 12 years old, 60% recognized sponsorship, but only 30% claimed to know how to differentiate sponsored content.

In 2025, the survey presented a new indicator related to children's perceptions of the advertising they received after searching for content on the Internet. Among users 11 to 17 years old, 65% agreed that talking or searching about a product or service on the Internet increases the amount of advertisements they received about it.

Furthermore, around two-fifths of children 11 to 17 years old demonstrated difficulty in understanding content ordering mechanisms, believing that everyone obtains the same information when they search for things on the Internet (45%), that the first result of an Internet search is always the best source of information (43%), and that the first post they see on social networks is the last one that was posted by one of their contacts (40%).

Given the evidence, although they do not fully understand the algorithmic logic, children perceive its effects on the content they receive, identifying patterns in advertising recommendations and targeting.

In this context, educational initiatives and family guidance, in isolation, are not sufficient to guarantee the protection of this population. Reducing exposure to commercial content and strengthening children's ability to critically evaluate information online requires integrating these measures with regulatory actions aimed at advertising targeted at minors.

Mediation of Internet use

As children's online participation on digital platforms has intensified, so have the risks and concerns of parents and legal guardians regarding the content accessed and contact with potentially harmful strangers in these environments.

In addition to the diversification of digital products and services used by this population, the reduction in computer use and the popularization of mobile devices have brought new challenges for the mediation of online practices by those responsible.

In this context, technical mediation—carried out through resources available in digital services and products for monitoring the activities of children in the digital environment—is adopted as a complementary measure to the guidance and verification practices carried out by parents and legal guardians. As a result, enterprises have been asked to offer parent mediation tools that enable this monitoring, allowing adults to track who the child interacts with, what content they access, their screen time, and other online activities. By establishing easy and accessible provision of these mechanisms as a guideline, the Digital ECA contributes to strengthening and structuring this obligation, reinforcing the shared responsibility of providers in promoting safer digital environments.

According to statements from parents and legal guardians of Internet users 9 to 17 years old, variations were observed in the types of resources employed. A larger proportion of caregivers used tools designed to limit who children can contact via voice calls and messages (37%), followed by features for monitoring the websites or applications children can access (34%), filtering applications children can download (33%), blocking or filtering certain types of websites (33%), alerting when children want to make purchases in application (31%), and features that limit the time children spend on the Internet (27%). Ad-blocking features (22%) were the least adopted among the items analyzed. The tools are primarily used for monitoring newer users, as can be seen in Chart 10.

CHART 10

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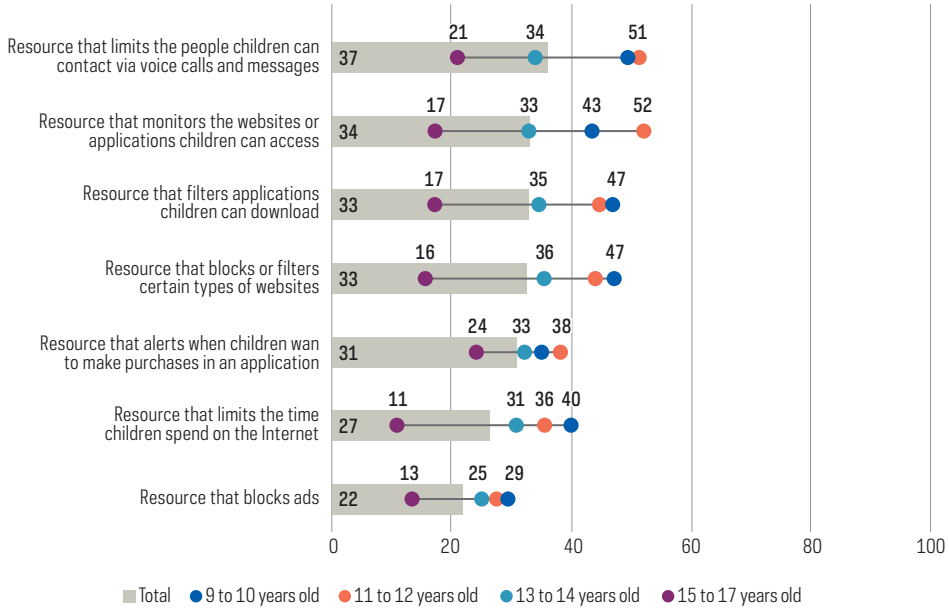
Technical mediation carried out by parents and legal guardians, by age group (2025)

Total number of Internet users 9 to 17 years old (%)



Although technical mediation, reinforced by the Digital ECA guidelines, can contribute to the moderation of content and interactions in the digital environment, it is not sufficient on its own. Its effectiveness depends on being combined with ongoing guidance, monitoring, and dialogue that promote understanding and critical use of technologies by children.

Regarding guidelines for Internet use, 37% of individuals 9 to 17 years old reported that their guardians "always" or "almost always" established rules for mobile phone use. However, the perception of more restrictive measures was lower: 20% of children in this age group stated that their guardians temporarily restricted their device use.

Differences were observed across age groups in terms of both guidelines and restrictions. Among children 9 to 10 years old, 58% stated that their parents or legal guardians "always" or "almost always" set rules for mobile phone use, a proportion that was 50% for those 11 to 12 years old. With regard to the temporary restrictions on the use of the devices, the percentages were 26% and 34%, respectively.

Among adolescents, the proportions were lower: 35% of users 13 to 14 years old and 18% of those 15 to 17 years old stated that their parents or legal guardians "always" or "almost always" set rules for mobile phone use. Regarding the temporary suspension of cell phone access, 18% of children 13 to 14 years old and 10% of those 15 to 17 years old reported that their parents or legal guardians adopted this measure.

Regarding verification measures, 35% of Internet users 9 to 17 years old stated that their parents or legal guardians "always" or "almost always" checked their mobile phones to see what they were doing or who they were talking to, a practice reported by almost half of the 11-to-12-year-old population (49%) and by 18% of children 15 to 17 years old.

Adolescents' perceptions of the verification practices adopted by their parents or legal guardians were reflected in their assessment of their guardians' knowledge about their online activities. Among users 9 to 10 years old, 62% believed that their parents or legal guardians knew a lot about what they did on the Internet, a proportion 20 percentage points higher compared to those 15 to 17 years old (42%). The perception that their guardians knew part of their online practices was 11 percentage points higher for older (40%) than for younger children (29%).

Furthermore, a higher percentage of children 9 to 10 years old (43%) "always" or "almost always" talked to their parents or legal guardians about what they did online, compared to children 15 to 17 years old (36%).

The proportion of users 9 to 17 years old who reported receiving help from their guardians "always" or "almost always" when doing something on the Internet that they did not understand (39%) was slightly higher than that of those who reported helping their guardians "every day or almost every day" with activities they did not know how to do online (31%).

However, this dynamic varied according to age group. Among children 15 to 17 years old, the proportion who said they helped their parents or legal guardians (37%) was higher than those who reported receiving help "always" or "almost always" (24%). Among children 9 to 10 years old, the opposite trend was observed: They reported receiving more support (49%) than offering it (15%).

For the first time, the survey investigated whether parents or legal guardians shared content found on the Internet, such as news, videos, and memes, with children. More than half of users 9 to 17 years old (56%) reported having received this type of content "always" or "almost always," highlighting the occurrence of sharing and interaction practices between parents and legal guardians and children in the digital environment.

This exchange also helps to understand how those responsible themselves seek information about the safe use of the Internet. When asked about their sources of information, half of those responsible for users 9 to 17 years old said they turned to the children themselves (50%), the main source cited, followed by family and friends (48%). About two-fifths mentioned traditional media, such as television, radio, newspapers, or magazines (42%), and the child's school (41%). Online sources showed similar proportions: 37% searched Internet safety information websites and 36% turned to online videos or tutorials.

In 2025, the survey also began investigating groups of parents or legal guardians on social media as a source of information, mentioned by 31% of respondents. A similar proportion (30%) said they sought information from Internet service providers.

Lower percentages were observed for seeking information from governments and local authorities (25%), manufacturers and retailers selling products for children (21%), and NGOs or children's advocacy organizations (19%).

This scenario highlights that, although multiple players can contribute to promoting the safe use of the Internet, they are still less frequently called upon by those in charge as sources of information. In this context, recent initiatives by public authorities aimed at guiding families and caregivers represent important progress. Of particular note is the launch of the publication *Children and screens: A guide on the use of digital devices*, coordinated by the Secretariat of Social Communication of the Presidency of the Republic (Secom-PR, 2024) with the participation of different ministries and civil society. This publication brings together recommendations and guidelines aimed at supporting families, educators, businesses, and public administrators in promoting a more responsible and balanced use of digital technologies by children. Another highlight is the Digital ECA, which expands the responsibility of suppliers of digital products and services by establishing, in addition to guaranteeing the safety and protection of children in the development and offering of technologies, the obligation to provide guardians with clear, accessible, and adequate information.

The measure seeks to strengthen conditions for those responsible for monitoring, guiding, and promoting safer and more responsible use of these products and services. This reinforces shared responsibility among families, the private sector, and public authorities in protecting rights in the digital environment.

Final considerations: Agenda for public policies

For 12 years, the ICT Kids Online Brazil survey has been producing consistent evidence about Internet use by children 9 to 17 years old in the country. Over this period, an expansion of connectivity has been observed, reaching more than 90% of this population. In addition to being more widespread, access has become progressively earlier.

Regarding devices, mobile phones have become the primary means of connection for almost the entirety of this audience. Televisions have surpassed computers as the devices used to access the Internet, highlighting significant transformations in access patterns and Internet usage dynamics in Brazil.

Despite these advances, inequalities persist regarding the variety of devices available, the frequency of use, and the locations of access, especially in contexts of greater socioeconomic vulnerability. Therefore, challenges remain in ensuring meaningful connectivity that guarantees adequate conditions for Internet access and use.

In terms of the activities carried out, there has been growth in the use of digital platforms, which intensified especially during the COVID-19 pandemic. Participation in these environments has broadened opportunities for information, video consumption, and sociability. However, this phenomenon has also deepened concerns about exposure to sensitive content, targeted advertising, and contact with strangers. Opportunities, but also risks, have intensified with the emergence of generative AI tools, which in 2025 were used by 65% of users 9 to 17 years old for schoolwork, looking up information, content creation, or sharing feelings and emotions, according to data collected for the first time by ICT Kids Online Brazil.

In this context, the survey evidence has contributed to the formulation and refinement of public policies and initiatives aimed at guaranteeing children's rights in the digital environment. Brazil plays a prominent role in agendas related to the protection and promotion of rights and the online participation of children, especially with the approval of Law No. 15.211/2025, known as the Digital ECA.

This regulation represents a historic milestone, establishing principles such as respect for privacy beginning from the platform's inception, provider accountability, the adoption of age assurance on mechanisms, the provision of parental supervision tools, and the prohibition of profiling-based advertising and the monetization of inappropriate content. It also reinforces the duties of transparency, impact assessments, and risk management on the part of digital service providers.

Given this scenario, the importance of strengthening shared responsibility among the State, the private sector, schools, families, and civil society in promoting a safer digital environment guided by the rights of children is reaffirmed. Continuous monitoring, through future editions of the survey, will be essential to track trends and the effects of measures adopted on Internet use by children, and to ensure that public policies remain evidence-based, responding effectively to the emerging challenges of the digital ecosystem.

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Articles

Prohibition of profiling for advertising purposes in the Digital Statute of the Child and Adolescent: A necessary analysis from the perspective of the Brazilian legal framework

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Data from the ICT in Education 2024 survey (Brazilian Network Information Center [NIC.br], 2025) showed that nearly all students in primary and secondary education in Brazil use social media. Additionally, the ICT Kids Online Brazil 2024 survey indicated that the first access to the Internet occurs at increasingly younger ages: 28% of Internet users from 9 to 17 years old reported that their first access happened when they were six years old, at most (NIC.br, 2024). This scenario of massive access to the Internet by children exposes this population to direct contact with marketing strategies that can constitute commercial exploitation, such as online advertising.

Advertisements, which occur in various formats, become more invasive and persuasive when their targeting is supported by behavioral profiles based on personal data treatment, which allows high-impact microsegmentation. This type of advertising, known as behavioral advertising, was the object of express regulation with the promulgation of the Brazilian Digital Statute of the Child and Adolescent (Digital ECA, as per its acronym in Portuguese, Law No. 15.211/2025).

This new law is inserted in a complex normative context of protection of children in face of Internet-specific advertising practices, regulated, for instance, by the Consumer Defense Code (CDC), the Legal Framework for Early Childhood, and the Brazilian General Data Protection Law (LGPD, as per its acronym in Portuguese).

The objective of this article is to analyze, from the legal and normative perspectives, the rules that regulate digital advertising and are focused on protection of children. It examines how the Digital ECA blends into the Brazilian legal framework to face the challenges of commercial exploitation in the online environment, especially when it is related to use of behavioral and emotional profiling techniques.

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Previous mechanisms for legal protection of children advertising under the Brazilian legal framework

The rules regarding advertising included in the Digital ECA add to other norms for protection of childhood in consumer relations that are already fully in force in Brazil. Despite being enacted before the widespread use of the Internet, these norms remain pertinent and guide the interpretation of the Digital ECA.

In line with the concept of full protection and with guaranteed priority for children as per Art. 227 of the Brazilian Federal Constitution, Art. 37, Para. II of the CDC defines the abusiveness and resulting illegality of any advertisement that "takes advantage of children's lack of judgement and experience". Similarly, Art. 39, Subpara. IV of the same law classifies as abusive the practice of "taking advantage of the consumer's weakness or ignorance […] to induce them to buy products or services", considering, also, their age.

It turns out that any advertising that seeks to induce children to consume, especially by manipulating elements intrinsic to their universe, takes advantage of the vulnerabilities inherent in this age group to get this population to purchase products and services. This occurs because children are not at a stage in their biopsychosocial development that allows them to respond on equal terms to consumerist pressures or formulate a critical opinion about the advertising messages directed at them (Henriques, 2021). Child advertising—understood here as any advertising activity that seeks to establish direct communication with individuals under the age of 12—must, therefore, be considered illegal in Brazil, since it is incompatible with the degree of development of its target audience and the full, priority, constitutionally guaranteed protection.

This understanding, resulting from a combined reading of the CDC and the Federal Constitution, as well as from knowledge about children's vulnerabilities, was ratified by Resolution No. 163/2014, of the National Council for the Rights of Children and Adolescents (Conanda, as per its acronym in Portuguese), which enshrines the abusiveness of advertising communication that seeks to persuade children to consume by using child language or characters, people, or celebrities with a strong appeal to this audience (Art. 2) and requires special attention and care regarding adolescents' psychological characteristics (Art. 3, Subpara. II).

In addition to these rules, Art. 36 of the CDC establishes that advertisements must be publicized in a manner that enables consumers to readily and immediately identify them as such. This legal provision confirms the illegality of advertisements directed at children, as they, especially the youngest, are unable to distinguish advertising communications from other messages. This provision is relevant in the context of digital advertising, in which companies are often encouraged to present their advertising messages in formats that resemble organic content. The slogan "Do not make ads. Make TikTok videos" (Oliveira, 2021), which appeared on the homepage of the advertiser support website for years, illustrates this tendency toward decreased identification with advertising in digital environments and reinforces the importance of Art. 36 of CDC.

Additionally, Art. 5 of the Legal Framework for Early Childhood establishes "protection against any form of violence and consumerist pressure" and "adoption of measures that

prevent early exposure to marketing communication" as priority areas for public policies oriented towards children up to the age of 6. This rule is paradigmatic in recognizing "consumerist pressure" as a risk from which children must be protected at the most critical phase of their development, which corroborates the abusive nature of marketing strategies oriented to this population.

Before the promulgation of the Digital ECA, this normative protection framework had already been applied by case law to curb abusive forms of online advertising. In 2020, the Court of Justice of São Paulo (TJSP, 2020) determined the abusiveness of an advertising campaign carried out by Mattel, which hired a well-known child YouTuber to promote the products of its doll lines in videos that seemed to be exclusively for entertainment purposes. According to the competent board, the campaign violated Art. 36 of the CDC, since the videos did not present the ostensible warnings informing viewers that they had advertising content, as well as Art. 37, Para. II of the same law and Resolution No. 163, Art. 2 of Conanda, given that they employed a child celebrity to carry out indirect advertising activities oriented towards child audiences.

However, there were no explicit provisions regarding the use of children's personal data for advertising-targeting purposes. Although children were protected from practices of this nature because of the general prohibitions imposed on child advertising, an equal level of protection was not extended explicitly in the law addressing adolescents. This deficiency was partially remedied by the LGPD, which introduced an important parameter to regulate digital advertising in Brazil by establishing, in its Art. 14, that the treatment of personal data of children must be carried out to in their best interests.

The requirement to observe "their best interests" functions as an interpretation guide that, a priori, precludes microsegmentation practices based on data and inferences about the personality and preferences of children. Because of their intrusive and potentially manipulative nature, these practices are incompatible with full protection and healthy development of this audience. In order to make it evident why behavioral advertising is also incompatible with adolescents' rights, the next section discusses its impacts.

The seriousness of the problem: Why behavioral profiling for advertising targeting to children requires categorical prohibition

The possibility of advertising microsegmentation through the processing of personal data has transformed the digital environment into an extremely effective channel for marketing communication. In contrast to TV advertisements, which are broadcast to heterogeneous audiences that are typically distant from the target profile, the data market enables advertising messages to be directed to specific users whose interests, activities, and behaviors have been previously mapped. This mapping is known as behavioral profiling, defined in Art. 2, Para. V of Digital ECA.

Targeting special offers to individuals who are more predisposed to consumption guarantees unprecedented effectiveness and helps explain the increasing relevance of the digital advertising market. Given this effectiveness, it was only a matter of time before

children became a priority target of thoses practices. One estimate indicated that children up to 14 years old are exposed to 1,260 advertisements every day on social media (Federal Trade Commission, 2023).

The mechanism enabling this high-precision advertising is data collection for commercial purposes, a practice that involves the use of cookies and activity tracking via apps and mobile devices. These sets of information are aggregated to generate detailed user profiles, and users' Internet browsing is monitored, which influences the content and advertisements they see. Data collection often occurs insidiously and in environments that should have no connection with advertising interests. For instance, a Human Rights Watch (2023) report found that seven educational websites used by the public education networks of the states of São Paulo and Minas Gerais collected data from children through tracking technologies designed for advertising.

The fact that so much data and metadata are collected for these purposes raises deep concerns that extend beyond the domain of consumption. Profiling techniques and predictive analytics that ground behavioral advertising aggressively manipulate consumers' interests and worldviews, taking advantage of vulnerabilities revealed by their personal data, often without their awareness. A 2017 memorandum from Facebook (now Meta) to advertising partners clearly demonstrates how deeply vulnerabilities can be exploited in behavioral advertising. In the document, the company boasted about being able to identify when adolescents were "stressed", "insecure", or "in need of a confidence boost", and then directed advertisements to them (Levin, 2017). Practices of this nature cannot be made compatible with the best interests of children.

The enormous effectiveness of behavioral advertising in inducing consumption desires calls into question adolescents' resistance to such advertising. Although they are at a more advanced stage than children, their development is an ongoing process in which the brain continues to reorganize structurally and functionally and is especially sensitive to social validation and promises of immediate reward (Carmargo, 2025).

Therefore, given the vulnerabilities specific to this age group and the fact that they can be easily exploited when exposed by massively collected personal data, the power imbalance between the fine-tuned algorithmic persuasion techniques and adolescents' (developing) autonomy becomes profound, such that advertising targeted in this way can further shape their preferences and worldviews.

As explained by Leijten and van der Hof (2025), commercial profiling can influence opinions, interests, and preferences, thereby affecting the rights to health, freedom of thought, and development. It can also "negatively affect children by encouraging materialism, negatively influencing the child-parent relationship and stimulating unhealthy lifestyle choices" (Leijten & van der Hof, 2025, p. 6).

These risks are made worse by the documented failure to moderate content and advertisements by big platforms, which includes the well-known promotion of deceitful advertisements or illegal products for children, such as vapes and betting (Alana Institute, 2024). This makes government regulation not only advisable, but also necessary.

Concerns about the effects of behavioral profiling are not limited to Brazil. Article 28 of the Digital Services Act (European Commission, 2022) expressly forbids profiling-based advertising targeting children. In the same vein, the Council on Communications

and Media of the American Academy of Pediatrics recommends the prohibition of all behavioral advertising directed to individuals under the age of 18 and warned about the high risks to full development, including prompting them to have unhealthy, addictive behaviors and contact with illegal marketing products (Radesky et al., 2020). Given this scenario, the next section presents a specific analysis of the prohibitions on behavioral advertising mentioned in the Digital ECA.

Progress in the Digital ECA regarding digital advertising

While Brazilian legal framework already had a robust system for protecting children against advertising abuses in general, the Digital ECA emerged as a specific and essential regulatory instrument to address the challenges of the digital environment. The new law not only reiterates and specifies the existing general protection principles, but also introduces categorical prohibitions targeting the most invasive advertising techniques, consequently cracking down on the commercial exploitation of this audience in the digital universe.

Article 6, Subpara. V of the Digital ECA imposes a general prevention duty on suppliers, forcing them to take "reasonable measures beginning with the design" of their products and services in order to, among other purposes, prevent children from being exposed to "predatory, unfair, or deceitful advertising practices, or other practices known for leading to financial damage". This article must be interpreted from the perspective of the CDC and other regulations already mentioned, so it can function as a proactive compliance clause that requires protection against abusive advertising practices to be incorporated into the architecture of platforms themselves (children's rights by design), including policies, terms of use, programming, and management of algorithmic recommendation systems.

Even more relevant to this discussion is the prohibition of advertising targeting that takes advantage of behavioral profiling and is oriented toward children. Article 2, Subpara. V of the Digital ECA defines profiling as

> any **form of personal data treatment, automatized or not**, used to assess certain aspects of a natural person, with the objective of **classifying them into a group or profile**, so it is possible to make inferences about their behavior, economic situation, health status, personal preferences, interests, consumption desires, geographic location, movements, political positions, or other similar characteristics" [emphasis added].

Based on this, the Law is explicit in Article 22 in prohibiting "the use of profiling techniques to target commercial advertising to children."

This article extends the prohibition to the "use of emotional analytics, augmented reality, extended reality, and virtual reality for this purpose", which shows a legislative concern about covering both current and emerging technologies that might be used for commercial persuasion purposes. It also indicates a particular concern regarding the practice of emotional analytics and seeks to curb the targeting of advertisements that exploit emotional vulnerabilities. Not unreasonably, as accusations such as those by Sarah Wynn-Williams, a former Meta employee, showed that Instagram actually identified

when adolescents felt vulnerable or sad, for instance, after removal of a previously posted picture, to target advertising material that exploited this emotional state. Additionally, the company targeted advertisements about weight loss to adolescents, especially young girls, when they showed concerns about their self-esteem or body image, a situation that illustrates the manipulation of this audience's emotional fragilities for commercial purposes (Bellens, 2025).

Article 26 of the Digital ECA goes further and prohibits

> the creation of behavioral profiles of child users based on collection and treatment of their personal data, including those obtained during the processes of age verification, as well as group and collective data, for commercial advertising targeting purposes.

Much more than merely reiterating the previously mentioned article, this excerpt enshrines and expands the interpretation of the prohibition on behavioral advertising, clarifying that the creation of profiles for this purpose based on group or collective data is also illegal.

The established prohibitions are fully aligned with international protection guidelines. General Comment No. 25 of the United Nations Committee on the Rights of the Child (CRC-UN, 2021), which adresses children's rights in the digital environment, expressly advises, in Item 42, that "States parties should prohibit by law the profiling or targeting of children of any age for commercial purposes on the basis of a digital record of their actual or inferred characteristics, including group or collective data". The guideline also specifies the prohibition of practices that rely on "neuromarketing, emotional analytics, and immersive advertising", which shows that the Digital ECA is consistent with the state of the art in digital protection in the international scenario.

In addition to the existing norms, the Digital ECA ensures that children have advertising-related protections compatible with their pervasiveness level and rights violation potential. By doing so, it is in perfect harmony with the full and priority protection guaranteed by Art. 227 of the Brazilian Constitution.

Final considerations

The protection of children against abuses in digital advertising in Brazil is the result of a coherent and complementary legislative evolution. The Digital ECA neither revokes nor replaces the previous framework. Instead, it synergistically complements the CDC, the Legal Framework for Early Childhood, and the LGPD, filling gaps and addressing the challenges posed by the digital environment.

One of the cornerstones of this innovation is the incorporation of the child rights by design concept and the establishment of a proactive prevention duty intrinsic to digital architecture, rather than merely a posteriori risk mitigation. Additionally, by clearly and absolutely prohibiting the creation of behavioral profiles (Art. 26) and emotional analytics (Art. 22) with commercial advertising targeting purposes, the legislators recognized the disproportionate and infringing nature of these techniques when applied to an audience at a specific, peculiar development phase.

With this new regulatory framework, a scenario with higher transparency and safety is expected. It is expected that data collection and the use of tracking mechanisms will decrease during children's online experiences on social media and other digital environments, such as educational technology platforms.

Although this article focused on protection against behavioral and emotional profiling practices, the Digital ECA opens new avenues for study. The prohibition against using augmented, extended, and virtual reality for advertising purposes (Art. 22) can directly impact the way advertising manifests itself in electronic games. It is recommended that future studies analyze the challenges of implementing and monitoring these prohibitions, ensuring that the full protection of children remains effective in digital and immersive environments.

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Invisible risks and real opportunities: Children and adolescents online in Bolivia

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The rapid expansion of Internet access and the widespread adoption of information and communication technologies (ICT) are reshaping childhood and adolescence worldwide. In Bolivia, this transformation is tangible in our national data: In our survey, 93% of adolescents reported owning mobile phones and 68% connected from home, yet these averages conceal persistent divides by territory and gender. This "mobile-first" pattern places smartphones at the center of learning, sociability, and everyday life, aligning Bolivia with broader regional dynamics in which mobile access structures educational, social, and cultural practices (Bozzola et al., 2022; Daoud et al., 2020; Global Kids Online, 2019).

International evidence has consistently shown a dual horizon: ICT expands opportunities for learning, participation, and peer support, while also amplifying offline vulnerabilities through exposure to harmful content, cyberbullying, grooming, and privacy violations (Trucco & Palma, 2020). Bolivian studies have echoed this ambivalence: Adolescents use social networks for schoolwork and interaction (Apaza, 2021), and at the same time, a significant share report online harassment and technology-facilitated violence (ChildFund Bolivia, 2022; Marín, 2019). On the institutional side, Bolivia has recently passed a law to protect children and adolescents from sexual violence in digital environments (2025)[4]—an important step that still faces implementation and enforcement

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[4] More information at https://obs.organojudicial.gob.bo/wp-content/anexos/archivos/normativa/bc82f5uw74at.pdf

challenges when compared with regional benchmarks such as Argentina and Costa Rica. This gap between access, risks, and institutional response underscores the need for robust, context-sensitive evidence.

Against this backdrop, this article presents findings from the first national study of its kind in Bolivia, conducted by the Institute for Research in Behavioral Sciences (IICC) of the Universidad Católica Boliviana "San Pablo" (UCB), in collaboration with Save the Children and ChildFund Bolivia. Using the Global Kids Online framework for international comparability, we combine a large-scale national survey of 1,200 adolescents (13–17) with 16 focus groups (n=128) to capture both population trends and the lived experiences and voices of children and adolescents. We summarize the main results—opportunities, skills, mediation, risks, and technology-facilitated violence—and close with actionable recommendations for policy and practice oriented to the Bolivian context.

Results and Analysis

The study provides a comprehensive overview of how Bolivian children and adolescents access, use, and experience digital technologies. The findings reveal a landscape where opportunities and risks are deeply intertwined, shaped by age, gender, socioeconomic background, and the forms of mediation provided by adults.

Access to the Internet begins at an increasingly early age, though differences by gender and socioeconomic status are evident. Over half of the participants reported going online between the ages of six and eleven, and many started earlier. However, boys tend to begin younger, while nearly half of female respondents first accessed the Internet during adolescence. Once connected, mobile phones dominated as the main devices: Almost nine in ten adolescents used them frequently, with higher rates among older teenagers. Their popularity reflects lower costs compared to computers and greater portability, which is especially attractive for gaming and social media. Socioeconomic gaps also shape access: Adolescents in private schools were more likely to connect from school and public places, while those in public schools relied more on household Internet connections.

The digital environment of Bolivian adolescents was structured around a few dominant platforms. WhatsApp, TikTok, and YouTube were by far the most frequently used applications, though usage patterns varied across gender and age. Girls used TikTok, Instagram, and Facebook more, while boys were more present on YouTube and video game platforms. Online gaming emerged as a particularly gendered activity, with three-quarters (75%) of boys playing frequently compared to less than half of the girls (45%). Although rare, a small percentage of adolescents acknowledged using dating apps, which points to early experimentation with adult-oriented platforms.

Social media penetration was high: More than three-quarters (77%) of adolescents had their own profiles on social networks or gaming sites. Predictably, older adolescents reported higher rates of ownership. Yet, focus groups showed that even those under thirteen, who technically lacked profiles, accessed TikTok or other networks through their parents' accounts.

When it comes to digital skills, adolescents expressed confidence in their ability to socialize online and handle basic operational tasks such as installing applications or downloading files. However, more advanced skills—such as verifying information, producing content, or protecting privacy—were far less developed. Only a third (34%) considered themselves highly skilled in navigation or search, and fewer than half in security. Older adolescents reported higher confidence than younger ones, especially in digital security, operational skills, and social management. Differences in adolescents' perceived levels of digital skills appear to be shaped by several factors. Parenting strategies play a central role: Restrictive mediation is often associated with lower skill development. Gender also matters, as boys tend to report greater confidence in their technical abilities than girls. A third factor is the low perception of online risks, which contributes to behaviors such as neglecting privacy settings—even when adolescents know how to configure them—or to overestimate their digital skills and engage online in ways that increase their vulnerability.. Overall, self-learning emerges as the primary pathway for acquiring digital skills.

Parental mediation is a critical factor shaping these experiences. Around half of the adolescents reported high levels of active mediation—dialogue, guidance, and involvement—while restrictive strategies, such as time limits or blocking access, were more common among younger teenagers. Adolescents themselves noted that strict prohibitions were often circumvented, especially by older boys, who developed strategies to bypass restrictions. While younger participants saw their parents as a source of protection in risky situations, older adolescents were less likely to turn to them, fearing harsh reactions or punishments. Parents, for their part, stressed the importance of building trust and communication, yet in practice, restrictive measures remained widespread.

Despite these tensions, the Internet was widely perceived as a source of opportunity. Nearly half of the respondents reported frequent enjoyment online, and this sentiment was slightly stronger among boys and older adolescents. Communication with friends and family was among the most common activities, followed by schoolwork and personal learning. YouTube, Google, and, more recently, generative Artificial Intelligence (AI) tools were central resources for academic support and skill development, ranging from solving homework to learning crafts or dances. At the same time, the use of generative AI raises concerns: While it facilitates tasks, adolescents themselves recognized that overreliance can undermine genuine learning. Online games and entertainment remained central, though again with gendered differences in the type of content consumed. Content creation was the least frequent activity, reported by 43%, despite many expressing a desire to produce videos or music. Barriers included a lack of resources, fear of ridicule, and exposure to negative feedback. Participation in online civic or community initiatives was even lower, with only a small minority engaging.

Risks and negative experiences were also present. About one in ten adolescents reported frequently feeling bad about something that happened online. When facing distress, 31% turned to their parents, and 23% to friends, but 28% did not seek help at all—a finding that reflects both gendered patterns of lack of communication and the persistence of silence around digital harm. Between 30% and 35% of participants reported encountering harmful content related to self-harm, discrimination, or extreme violence. Adolescent girls were especially vulnerable to harmful body image content, with

31% reporting exposure to anorexia or bulimia-related messages. On the other hand, 56%reported having contacted strangers online, and four in ten went on to meet them in person. While most of these encounters were with peers of similar age, some involved adults, and a small fraction led to negative experiences. Focus groups revealed a nuanced picture: Most adolescents recognized the risks of interacting with strangers online, yet many still engaged in casual exchanges, especially in gaming spaces. While girls reported greater caution about offline meetings, some boys described positive encounters. In general, adolescents mentioned self-protection strategies such as refusing invitations or blocking suspicious users, however, they also admitted that curiosity about interacting with strangers sometimes led them to put themselves in risky situations.

Digital violence—including bullying, cyberbullying, and sexual violence—emerged as one of the most troubling dimensions. Although offline insults and offensive treatment were more frequent, online and offline patterns overlapped and reinforced one another. About 21% of adolescents reported experiencing offensive treatment online, and 12% admitted to mistreating others. Cyberbullying practices included recording peers in class without consent, creating anonymous accounts to spread jokes, and circulating offensive stickers—often trivialized as humor, which masks their impact. Girls reported greater exposure to body-shaming and appearance-related insults.

Sexual violence online was particularly concerning: Nearly 15% had received unwanted sexual messages, 16% had been sent sexual content without consent, and almost one in ten had been pressured to discuss or perform sexual acts. Prevalence was higher among girls and older adolescents, and most aggressors were acquaintances, highlighting the need to address peer dynamics. Finally, misuse of personal information added another layer of risk: Around one in five adolescents reported their data being misused or their accounts accessed without permission.

Taken together, these findings depict a generation for whom the Internet is both indispensable and hazardous. Access is early and widespread, skills are unevenly developed, and mediation remains fragile. The digital environment offers spaces for learning, creativity, and connection, but also exposes young people to risks that range from everyday harassment to severe violations of their rights. This duality of opportunities and vulnerabilities is not abstract: It is lived daily by children and adolescents, and it demands responses that move beyond prohibition toward trust, guidance, and systemic protections.

Discussion

This research set out to identify the opportunities and risks associated with the use of ICT by Bolivian children and adolescents. The analysis of the results allows us to reflect critically on how new generations are navigating an increasingly digitized environment. The findings suggest that ICT does not simply provide tools or external resources for children's development but is progressively shaping the very ways in which young people live, think, and experience themselves.

One of the most striking results is the extent to which technology has become constitutive of children's identities. The majority of respondents began using the Internet at very early ages, in some cases before they entered primary school, and mobile devices have become central to daily routines. Phones are used not only for entertainment or communication but also for learning, building friendships, and expressing tastes and beliefs. This pervasive presence of technology creates new forms of digital subjectivation: Rather than being passive users, children and adolescents are reconfigured as hybrid subjects whose identities are shaped by the constant interaction with digital environments.

The findings also highlight profound transformations in the ways relationships are built and maintained. Social interactions are increasingly mediated by digital platforms, where friendships emerge, evolve, and sometimes dissolve. Online gaming, for example, offers spaces for boys to create bonds based on skill and competition, while girls tend to use social networks to share content, exchange experiences, and reinforce collective identities. The figure of the "stranger," traditionally associated with danger in offline warnings, is redefined in digital settings: Many adolescents no longer perceive online-only acquaintances as strangers, but as part of their social networks. This redefinition carries risks, but it also underscores the capacity of young people to establish their own rules of interaction. In some cases, adolescents even seek emotional support from generative AI applications, revealing a relational gap with caregivers and raising questions about the depth and authenticity of online bonds.

At the same time, the study shows how certain forms of online violence remain largely invisible. Insults, harassment, and humiliation circulate in everyday interactions on social networks, messaging apps, and gaming platforms, and are often normalized by children themselves as part of "digital life." This normalization makes it difficult to recognize the emotional damage these experiences can cause, such as stress, anxiety, or low self-esteem. The invisibility of these practices is reinforced by the algorithms of digital platforms, which tend to promote content that generates strong emotional reactions, including discriminatory or sexualized messages. In this sense, adolescents are not only exposed to aggression by peers but also to structural forms of violence embedded in the design of digital systems.

Among the most harmful phenomena identified is digital sexual violence, which disproportionately affects girls and adolescent women. Harassment, coercion to send intimate images, blackmail, and the dissemination of sexual content without consent are recurrent experiences that reveal how gender inequalities are reproduced in the virtual sphere. The perception of risk is therefore deeply gendered: Girls often experience digital spaces as unsafe, while boys tend to underestimate dangers. What is especially concerning is that aggressors are not always strangers, but frequently acquaintances or friends, which complicates traditional strategies of prevention. Moreover, current approaches often place the burden of responsibility on girls, urging them to limit their own behavior rather than addressing the structural roots of the violence.

Another critical aspect is the intergenerational gap in digital competencies. In cases where parents, caregivers, and teachers have lower levels of digital literacy than adolescents, they tend to resort to restrictive mediation strategies rather than providing active guidance. On the other hand, adults frequently lack access to the algorithmically segmented spaces that adolescents inhabit, creating parallel worlds that are invisible to

them. This gap not only limits the effectiveness of parental and school mediation but also forces children to rely on their own strategies of self-regulation, which are not always sufficient to navigate complex risks. The weak integration of ICT into educational curricula further reflects structural gaps that hinder the full development of digital literacy.

Mediation thus becomes one of the greatest challenges of the digital era. Parents and teachers often attempt to transpose offline models of control to online contexts, but these prove insufficient given the speed of technological change and the opacity of digital platforms. Instead of fostering dialogue and critical learning, many adults turn to prohibition or surveillance, approaches that may reduce exposure but also limit opportunities. Effective mediation cannot be conceived as the sole responsibility of families: it requires the joint involvement of schools, governments, and technology companies in designing and implementing protections, promoting digital literacy, and creating safer online environments.

Altogether, these findings point to the ambivalent nature of ICT in the lives of Bolivian children and adolescents. These technologies create unprecedented opportunities for learning, socialization, and self-expression, while simultaneously reproducing inequalities and exposing young people to new forms of violence. Far from a simplistic balance of risks and benefits, the discussion highlights the importance of adopting intersectional and context-sensitive approaches. Only by acknowledging both the transformative potential of ICT and the structural challenges it poses can effective, comprehensive, and child-centered responses be designed.

To respond to this reality, the priority is to ensure the effective implementation of the recently established law on the Protection of the Sexual Integrity of Children and Adolescents in Digital Environments, accompanied by adequate resources, monitoring, and intersectoral coordination. At the same time, reducing digital gaps through equitable access and strengthening digital literacy in schools and families are essential to transform risks into opportunities. Digital platforms must assume co-responsibility by designing safer spaces and ensuring transparency, while civil society and educational communities should foster participatory strategies that include the voices of children and adolescents. Families, finally, must move beyond restrictive control to trust-based mediation. Only through shared responsibility across these actors can information and communication technologies become tools that protect, empower, and expand the rights of children and adolescents.

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Incorporating the BNCC Computing and Digital and Media Education into the curriculum: Lessons based on three public school systems

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In Brazil, several policies aim to guide children's education toward the safe and conscious use of information and communication technologies (ICT), though their implementation remains challenging. According to Costa (2019), technologies should be understood not only as tools, but as languages that constitute "digital culture," whose critical mastery is a prerequisite for citizenship. This understanding aligns with the analysis of online risks, as classified by Livingstone and Stoilova (2021), which range from exposure to inappropriate content to privacy violations and disinformation.

The urgency of addressing this issue is highlighted by recent data. According to ICT Kids Online Brazil 2024 (Brazilian Internet Steering Committee [CGI.br], 2025a), 95% of children 9 to 17 years old use the Internet daily, and 29% of those between 11 and 17 years old have already experienced offensive situations online. In the field of education, ICT in Education 2024 (CGI.br, 2025b) revealed that 52% of students said they had not received guidance on verifying information, 69% on privacy, and 34% on how to deal with cyberbullying.

This scenario has driven the creation of a robust regulatory framework. The Brazilian Civil Rights Framework for the Internet (Law No. 12.965/2014) already established the State's duty to provide training for the safe use of the Internet. This was supplemented by Law No. 13.185/2015, which combats cyberbullying; the National Common Curricular Base (BNCC), which includes digital culture as a general competency (Brazilian Ministry of Education [MEC], 2017); the Brazilian General Data Protection Law (LGPD, Law No. 13.709/2018), with specific protections for children; and the deepening of the BNCC brought about by its Computing supplement (MEC, 2022). More recently, Law No. 14.533/2023 created the Brazilian National Digital Education Policy; restrictions on the use of mobile phones in schools were established in Law No. 15.100/2025; the Digital and

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Media Education Guidelines were approved with CNE/CEB Resolution No. 02/2025; and Law No. 15.211/2025 created the Brazilian Statute of the Child and Adolescent (Digital ECA). Together, these guidelines consolidated digital citizenship as a central agenda in education.

Despite regulatory progress, curriculum updates remain a challenge. A survey by Safernet Brasil (Silva et al., 2025) found that, in 2024, only 44% of state secondary education networks had a dedicated curriculum component on the subject. Curriculum updates in line with the BNCC Computing and the Digital and Media Education Guidelines, whose implementation will be mandatory in 2026, allows networks to opt for cross-cutting or specific approaches, but in practice, both paths present difficulties.

This article reports on the experience of three education departments partnering with the Digital Citizenship Discipline project, an initiative by Safernet Brasil and the United Kingdom Government, which supports the public school system in implementing curricula that comply with the aforementioned regulations (Safernet Brasil, 2025). The objective is to analyze the pilot implementation strategies adopted by these networks, examining participation models, the teaching profile, and lessons learned from the process. By presenting empirical evidence, the study seeks to offer support to other education networks in updating their curricula.

Analysis

The curriculum update for the BNCC Computing and the Digital and Media Education Guidelines is the responsibility of state and municipal networks, following the collaboration regime of the Brazilian National Education Guideline and Framework Law (LDB, Law No. 9.394/1996). The guidelines (MEC, 2025) suggest two possible approaches: organization through specific curriculum components or as a cross-curricular element that permeates other areas of knowledge.

However, the transition from normative guidelines to curricular practice is fraught with complex challenges, many of which are recognized in MEC's own guidelines (2025). Among these, three stand out: the difficulty in overcoming a purely instrumental approach to technology, the need for continuing education for teachers in all areas, and the structural dilemma between creating a specific curricular component—which competes for space in an already crowded schedule—and implementing a cross-curricular approach that does not become diluted or superficial. It is precisely in addressing these challenges that the experiences of the three education networks analyzed here gain relevance, as they illustrate concrete paths and the lessons learned from each model.

In the aforementioned project, each partner department was responsible for defining its own strategy. Table 1 summarizes the models adopted in the pilot cases, noting that the experiments took place before the formal update of the networks, which is expected to be completed by the end of 2025.

TABLE 1

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Strategies for implementing the BNCC Computing and the Digital and Media Education Guidelines — Pilot cases

	State Secretariat of Education of the federative unit (FU) in the South region	Municipal Secretariat of Education in the metropolitan region of the FU in the Northeast region	State Secretariat of Education of the FU in the Northeast region
Year	2023	2024	2025
Previous curriculum	There was an elective component in the secondary education curriculum focused on the digital culture axis of the BNCC Computing, but without available teaching resources, such as lesson plans and continuing education.	There was no curriculum component on the topic or a comprehensive initiative.	Technical schools had a mandatory Digital and Technological Education component. Other schools did not have any components.
Participation model	Voluntary participation by schools offering the elective course.	Voluntary participation by municipal schools.	Voluntary participation by technical, full-time, and regular schools.
Coverage	37 state schools in 29 municipalities.	15 municipal schools.	97 state schools in 74 municipalities.
Strategy	The project resources (lesson plans and teacher training) served as pedagogical support for the implementation of the elective course.	The project resources were adapted for elementary education and used across the board by professors responsible for conducting computing activities.	In technical schools, the project resources were used to support the mandatory Digital and Technological Education component. For the others, an elective curriculum component was created, and cross-curricular integration was encouraged in places where the elective component was not taught.
School segment	Upper secondary education.	Primary education and lower secondary education.	Upper secondary education.
Teacher training areas	Of all 40 teachers who took part in the pilot, nine had degrees in language and literature (22.5%), six in visual arts (15%), six in education (15%), five in geography (12.5%), and four in history (10%). Other degrees accounted for less than 10% of all teachers.	Of a total of 18 participating teachers, five had degrees in language and literature (27.8%), five in education (27.8%), two in computer science (11.11%), two in history (11.11%), two in information technology (11.11%), and two in biological sciences (11.11%). Other areas had fewer than 10% of mentions.	Of all 124 teachers who took part, 26 had degrees in language and literature (21%), 23 in history (18.6%), 14 in geography (11.3%), 12 in biology (9.7%), and 10 in math (8.1%). Other areas had fewer than 8% of mentions.

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	State Secretariat of Education of the federative unit (FU) in the South region	Municipal Secretariat of Education in the metropolitan region of the FU in the Northeast region	State Secretariat of Education of the FU in the Northeast region
Year	2023	2024	2025
Areas of knowledge previously taught by the teachers[4]	Twenty teachers taught components in the area of languages and their technologies (50%), 11 in applied humanities and social sciences (27.5%), six in natural sciences and their technologies (15%), five did not report the area (12.5%), and three in mathematics and its technologies (7.5%).	The teachers were responsible for teaching computing activities during their own curriculum classes. Of the total number of participating teachers, 15 taught languages and their technologies (83.3%), six taught mathematics and its technologies (33.3%), six taught natural sciences and their technologies (33.3%), and four taught applied humanities and social sciences (22.22%).	Of the total number of participating teachers, 46 stated that they taught subjects in the area of applied humanities and social sciences (37.1%), 42 in languages and their technologies (33.9%), 30 in natural sciences and their technologies (24.2%), and six in mathematics and its technologies (4.8%). Another six professors reported teaching specific technical subjects (4.8%).
Students covered	1,705 students.	2,520 students.	8,372 students.
Integration with other actions	The secretariat already had a well-established department directly responsible for violence prevention initiatives in schools. We integrated the curriculum update into this department, particularly in continuing education, which was offered to the entire network.	The secretariat's technicians responsible for the educational technology sector adapted the project's content for primary education and lower secondary education, creating a cross-cutting project focused on preventing violence on the Internet.	Outstanding teachers participated in interdisciplinary cross-curricular projects, not necessarily linked to the elective or compulsory component.

[4] The same teacher may have more than one area of training and more than one area of knowledge in which they commonly work.

► CONCLUSION

	State Secretariat of Education of the federative unit (FU) in the South region	Municipal Secretariat of Education in the metropolitan region of the FU in the Northeast region	State Secretariat of Education of the FU in the Northeast region
Year	2023	2024	2025
Lessons learned/insights	Teachers assigned to curricular components that address interdisciplinary topics, such as those presented in the BNCC Computing, need pedagogical resources that facilitate the planning and execution of the proposed syllabi. We identified many doubts about ICT concepts, and adequate support led to a change in practices, from a more instrumental and passive logic of ICT to one that understood them as objects of knowledge.	The update to the BNCC Computing was initiated and then guided by the digital culture axis, which brings the socio-emotional and relational skills and competencies essential to the critical understanding of computational thinking and the digital world. It is necessary to strengthen continuing education, not only for teachers who work in the classroom, but also for technical teams in education departments, so that the curriculum update process is carried out in a comprehensive and dialogical manner with the network. In this department, the engagement and direct feedback from teachers were decisive in adapting the content to primary education, a stage for which the project content was not originally intended. School infrastructure (e.g., devices such as computers and high-quality Internet access) is important for practical uptake of ICT use, but offline activities tend to be more engaging, especially in the early years.	Full-time schools are better able to accommodate a new compulsory curriculum component because they have a greater number of hours available. This does not mean that the challenge of teacher training is any less significant, especially when the process is not accompanied by new hires or continuing education. In the case of this department, there was a multifaceted curriculum organization, following ongoing projects and school types. Thus, regardless of the school, there was the possibility of immediate adherence to the BNCC Computing curriculum update.

Source: prepared by the authors.

Conclusion

Analysis of experiences shows that consolidating the BNCC Computing and the Digital and Media Education Guidelines into the comprehensive training of public school students still faces significant challenges. Among these are the structural inequalities present in education systems, limitations in the training of managers and teachers, curricular fragmentation, and the possibility of predominantly instrumental and passive approaches to the use of ICT. These limitations tend to impact the pedagogical potential for developing the digital competencies and skills outlined in the curriculum guidelines. In addition, the distinction between using technologies as pedagogical tools and educating for the conscious and responsible use of these technologies is fundamental, as it requires not only technical competencies, but also relational and socio-emotional ones aimed at training for life in society.

In this context, digital citizenship emerges as a structuring dimension, directing the focus of instrumental competencies toward critical reflection on the ethical, social, and cultural impacts of ICT. By developing skills such as understanding algorithms and Artificial Intelligence (AI), critical analysis of information and media, and defense of digital rights, students are prepared to act responsibly and proactively in these spaces. This approach proposes a curriculum that not only trains students for the job market, but also strengthens democracy, inclusion, and citizen participation. Digital citizenship, by engaging with students' life projects and the current reality, expands the possibilities for a transformative education, anchored in a commitment to social justice, sustainability, and the right to communication as a fundamental dimension in promoting and strengthening their rights and duties.

The analysis of the three pilot cases revealed that, regardless of the implementation model—whether via a preexisting elective component (in the case of the southern FU), as a cross-cutting project (in the case of the northeastern municipality), or in a multifaceted manner (in the case of the northeastern state)— the effectiveness of digital citizenship depends crucially on three factors: structured pedagogical resources, continuing education that transcends the teaching staff directly involved, and the valorization of preexisting initiatives in the network. As evidenced, the challenge of interdisciplinarity materializes in the predominance of teachers in the area of languages, indicating the need for active strategies to engage teachers of natural sciences and mathematics, for example. Furthermore, even before the formal curriculum update and adaptation to the BNCC Computing and the Digital and Media Education Guidelines, the networks already had scattered initiatives, uncategorized or led exclusively by teachers in their schools, whose appreciation and use as empirical support was an important strategy for the project and should be taken into account in updating the curricula. Finally, the adoption of a cross-cutting approach rather than a mandatory curricular component occurs, in particular, due to the challenge of managing an already crowded curriculum, in addition to the lack of prospects for hiring dedicated teachers.

Overcoming these challenges requires understanding ICT as an object of knowledge, computing as an interdisciplinary field of knowledge, and digital and media education as a field that brings together different areas and types of knowledge (MEC, 2025). This implies supporting and encouraging teachers from all areas, promoting active methodologies that foster student leadership, and ensuring that children are listened to in the curriculum update process. Yearther challenge is to consider the country's regional and social diversity, respecting the autonomy of education networks while promoting greater dialogue and exchange of experiences between them.

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Short video platforms and adolescents: What they think, do, and propose to overcome the challenges they face

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In 2024, platforms that offer short-form video features, such as TikTok, YouTube, and Instagram, stood out as the apps most used by adolescents 13 to 17 years old (Brazilian Internet Steering Committee [CGI.br], 2025). This data, far from merely indicating technological preference, reveals transformations in this group's patterns of sociability, leisure, and identity formation. The massive insertion of adolescents in these digital environments, characterized by fast-circulating content and highly-customizable algorithms, creates considerable challenges for different segments of society, ranging from screen time and participation in collective dynamics, such as games, trends, and viral challenges, to more complex issues related to security, privacy, and personal data treatment.

In the face of this context, InternetLab and Rede Conhecimento Social carried out the study entitled *Usos e impactos de plataformas de v*ídeos *curtos por adolescentes do Brasil* (*Uses of short video platforms by Brazilian adolescents and their impacts on this population*) (InternetLab & Rede Conhecimento Social, 2024).[8] Its objectives were to examine how adolescents consume and produce content and interact on these platforms, and to identify the main impacts on this population's routines, mental health, and relationships.

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[8] The study was carried out with the support of TikTok Brasil.

Building on this study, this article seeks to deepen discussions about the content that adolescents consume and produce on these platforms. By combining the study's findings on short videos with other data, we aim to examine more conscious, responsible, and safe uses of short video platforms among this audience in Brazil.

Methodology

The study *Usos e impactos de plataformas de v*ídeos *curtos por adolescentes do Brasil* (InternetLab & Rede Conhecimento Social, 2024) was carried out by applying a combination of quantitative and qualitative approaches, integrated by means of a methodology called PerguntAção.[9] In this process, a group of nine adolescents from different regions of Brazil participated in formative, hands-on workshops that covered all steps in designing an opinion survey, from formulating questions to interpreting results.

Overall, the study included 846 adolescents from across the country who completed an online questionnaire and 37 participants in discussion groups or interviews, including adolescents, legal guardians, educators, and psychologists. In order to increase participation and diversity, 12 social organizations and schools[10] collaborated and received quantitative reports (with no identification) of the results, which served as the starting point for internal discussions.

Given that active listening to adolescents is essential to the development of considerations about the use of platforms by this audience, this study was conducted in collaboration with a young researcher who participated in the investigation conducted by InternetLab and Rede Conhecimento Social. Maria Eduarda Barrios, a member of the PerguntAção group, also contributed to the writing of this article, particularly its structure and the reflections presented here, hence her inclusion as one of the authors.

Therefore, the data presented here resulted from the combination of the study *Usos e impactos de plataformas de vídeos curtos por adolescentes do Brasil* (InternetLab & Rede Conhecimento Social, 2024) and the publication ICT Kids Online Brazil 2024 (CGI.br, 2025). The discussion focuses on three main aspects: (i) the relationship between production/consumption of short videos and interactions in this digital environment; (ii) security and the potential risks associated with the use of these platforms; and (iii) the role of legal guardians, education institutions, and platforms themselves in promoting safer and more transparent digital environments.

[9] More information available at https://redeconhecimentosocial.medium.com/voc%C3%AA-sabe-o-que-%C3%A9-o-pergunta%C3%A7%C3%A3o-e21adbe23761

[10] Organizations: Bairro da Juventude (Criciúma-SC) ▪ Centro de Excelência Atheneu Sergipense (Aracaju-SE) ▪ CETI Augustinho Brandão (Cocal dos Alves-PI) ▪ E.E. Teotônio Vilela (Campo Grande-MS) ▪ E.E.E.M. André Leão Puente (Canoas-RS) ▪ Escola Castanheiras (São Paulo-SP) ▪ Escola de Referência em Ensino Fundamental Evandro Ferreira dos Santos (Cabrobó-PE) ▪ ETI Professora Margarida Lemos (Palmas-TO) ▪ Fundação Raimundo Fagner (Orós e Fortaleza-CE) ▪ Instituto de Estudos Socioeconômicos — Inesc (Brasília-DF) ▪ Nepso Minas Gerais (MG) ▪ Nepso Rio Grande do Sul (RS) ▪ Porvir (Nacional) ▪ Reciclar (São Paulo-SP).

Adolescents and their interactions with short videos

What are adolescents' perceptions about short videos? Almost unanimously, they stated that this format offers quick entertainment (85%) and arouses curiosity about watching more and more content (82%). In their opinion, communication on these platforms is designed to lead to hyper-engagement, with dynamic, targeted, and short-form content.

These videos go beyond being a mere pastime: They are valued as resources to get up to date about new developments, socialize, keep up with the news, and even study. This demonstrates the multifunctionality of these platforms, which bring together in a single environment different types of resources, as pointed out in the account of one of the participants:

> "I also use TikTok when I need to get informed. When I don't have much time and need short videos, I go on TikTok and search for something brief and to the point. For instance, some content for Enem [Brazilian National High School Exam] or something scientific. On YouTube, it would take 20 minutes; on TikTok, there is already something very concise and handy" (Female participant, 15 to 17 years old, p. 28).

In addition to this perception of multiple uses, the adolescents admitted that platform recommendation algorithms operate precisely to keep their interest in different subjects, but reinforce content similar to what they already consume:

> "On TikTok, the more you like a certain type of video, the more it recommends that type for you. It's a recommendation system" (Male participant, 13 to 15 years old, p. 41).

According to them, the recommendation system is partially desired. They understand that this sort of "curation" is part of the services platforms must provide for their users. On the other hand, they realize it can result in excessive content about a certain subject and prevent them from learning about other topics and realities, or even expose them to materials that are inappropriate for their age. When asked about the possibility of an algorithm-free platform, they refuted the suggestion:

> "It's awful, because there is nothing I search for. I think the best option is the middle ground" (Female participant, 15 to 17 years old, p. 41).

As a result of this architecture, in which content is constantly customized and therefore aligned with adolescents' interests and preferences, 61% of participants mentioned not realizing how much time they spend watching short videos. They reported that information overload leads to rushed consumption and makes them more selective about which content to watch in full: 83% stated that they have the patience to watch videos longer than one minute, provided the subject interests them.

Additionally, 53% of the adolescents said that, if they want, they are able to stay away from social media. However, data from ICT Kids Online Brazil (CGI.br, 2025) showed that, in practice, disconnecting from the Internet — not just from short videos — can be a considerable challenge: 24% tried, but failed to decrease their time online, and 22% kept using it, even with no interest.

Excessive screen time is already seen by adolescents themselves as a threat to physical and mental health. This perception was reinforced by a publication by the Social Communication Secretariat (Secom, 2025), which associated prolonged exposure to screens with delayed cognitive, emotional, and language development, as well as with health problems and psychological distress. Unsurprisingly, 83% of participants stated that short video platforms should warn users about time spent and offer tools to support time management.

The participants mentioned some alternatives that could help them reduce the time devoted to the consumption of short videos. They included greater availability of leisure activities in their municipality or neighborhood (84%) and greater attention from their relatives (89%).

Yearther finding related to short video consumption showed that adolescents tend not to produce content: Only 11% of the participants stated that they create videos for these platforms. Moreover, most of them do not typically watch content made by other adolescents:

> "I've already felt like posting day-in-the-life videos, because I thought they could be fun. I find it really embarrassing, especially because I would start from scratch, but the main reason I don't do it is that I don't have a cell phone that is really appropriate for filming and editing videos. If I did, maybe I would take my chances and post something" (Female participant, 15 to 17 years old, p. 33).

Some of the main obstacles mentioned by adolescents are a lack of adequate equipment and fear of exposing themselves on social media, which could elicit unexpected reactions, such as criticism, misinterpretation, or misuse of their image or speech. Among the listed sources of discomfort, the primary one was comparison with other realities, which could lead them to stop considering their own experiences relevant enough to share.

This feeling is reinforced by the type of content they access. In our study, we identified that bullying and cyberbullying-related content are accessed by a high number of adolescents, which causes them great discomfort (82%) and especially affects girls and LGBTQIAPN+ adolescents.

This result is consistent with an analysis by Mariana Valente (2023). According to her, after the increased access and use of social media in Brazil, violence dynamics previously limited to the offline environment began to be replicated online. Therefore, practices such as misogyny and LGBTphobia were updated and amplified in the digital environment, gaining broader reach, greater visibility, and faster dissemination.

In this context, the following question arises: Who is producing the short videos consumed by adolescents? The study data suggested that most of them are produced by adults and that their content does not necessarily target adolescents.

It is also relevant to emphasize that although frequent use of social media is typically associated with adolescents (Alana Institute et al., 2024), 75% of participants reported that their legal guardians watch short videos daily or almost daily. According to *the Guia de uso de telas e dispositivos digitais por crianças e adolescentes (Guide to screen and digital device use by children and adolescents)* (Secom, 2025), adults' behavior is one of the main factors contributing to early use of digital devices. Excessive use by adults directly influences children, who see them as role models during growth and development.

Perceptions about security and potential risks on short video platforms

The use of digital platforms, especially the consumption of short videos, is already part of the routine of Brazilian adolescents. Consequently, it is fundamental to discuss potential risks associated with this use and reflect on the role of the main actors in this audience's lives—such as schools, families, governments, and platforms themselves—regarding both protection against harmful content and the search for (as well as encouragement of) practices and tools that favor a more conscious and healthy relationship with technology.

Although a large number of short video platforms only allow access to adolescents who are 13 years old or older,[11] in practice, there is considerable use of these platforms by younger children. The subject has gained prominence in the Brazilian and international public debate and resulted in stricter regulatory age verification measures in different countries, so the risks associated with the use of social media by children could be controlled.

In the United Kingdom, for instance, the Online Safety Act (2023) established age verification rules to protect minors against exposure to harmful content;[12] in Albania, the government went as far as banning TikTok for one year after a case of violence involving adolescents;[13] and in Norway, the minimum age to use social media was increased from 13 to 15 years to protect children from algorithms' effects.[14] The European Commission, in turn, initiated investigations into adult-content websites because of failures in their age verification system,[15] whereas in the United States, attorneys general from several states filed lawsuits against TikTok for harm to the mental health of children.[16]

In Brazil, legislative proposals have also proliferated. More than 30 bills were introduced in a single week to regulate the use and presence of children on social media.[17] One example is Bill No. 3.886/2025, by Federal Deputy Tabata Amaral (PSB-SP), which aimed to prohibit monetization of digital content involving minors, and Bill No. 3.961/2025, by Federal Deputy Kim Kataguiri (União Brasil-SP), which proposed to curb access by people under 14 years old to social media.

According to the ICT Kids Online Brazil 2024 survey (CGI.br, 2025), 89% of children 9 to 10 years old have access to the Internet, and 60% of this group have accounts on digital platforms. Data from our study showed convergent results: 59% of adolescents reported beginning to use social media before age 12. Both findings highlight the recurrence of violations of the platforms' age restrictions.

[11] Short video platforms such as Kwai, TikTok, YouTube, and Instagram require that the minimum age for the creation of an account be 13 years. Read more on the theme at https://support.google.com/accounts/answer/1350409?hl=en (Google); https://www.kwai.com/safety?id=community (Kwai); https://www.tiktok.com/community-guidelines/en/youth-safety/ (TikTok); and https://about.instagram.com/blog/announcements/instagram-community-terms-of-use-faqs (Instagram).

[12] More information at https://internetlab.org.br/pt/semanario/01-08-2025/#24497

[13] More information at https://internetlab.org.br/pt/semanario/10-01-2025/#23786

[14] More information at https://internetlab.org.br/pt/semanario/01-11-2024/#23652

[15] More information at https://internetlab.org.br/pt/semanario/24166/#24155

[16] More information at https://internetlab.org.br/pt/semanario/18-10-2024/#23617

[17] More information at https://internetlab.org.br/pt/semanario/15-08-2025/#24584

Although they recognized the early presence of these apps in these environments, when asked whether apps should allow access to people under 13 years old, most participants (74%) opposed it. They also pointed out the need to implement and strengthen age verification rules: 52% agreed with the adoption of a mechanism that ensures that the age declared at the time of account creation on the website is accurate, and 49% agreed with the creation of a more robust verification system.

Our study also showed that, when adolescents use these platforms, they often experience defenselessness, a lack of proper support, and widespread vulnerability. A substantial share of participants (74%) mentioned difficulty identifying mechanisms for reporting inappropriate content on short video apps. One of the interviewed adolescents stated that she prefers "to keep to herself", since she is not familiar with the reporting mechanisms:

> "Honestly, I don't use this stuff a lot, so I don't report, because I don't know much about it. I skip the video or I dislike it. I'd rather keep to myself. It has to be something really serious for me to try to find out how to report it" (Female participant, 13 to 14 years old, p. 52).

The feeling of defenselessness was also identified by the ICT Kids Online Brazil survey (CGI.br, 2025), which showed that nearly half of the adolescents have gone through negative online experiences, ranging from misuse of information to identity theft. Therefore, they argue that platforms must adopt content tailored to different age groups, so minors do not have access to certain types of videos, in addition to displaying warnings (disclaimers) in posts with sensitive content.

When the specific subject of online data protection was addressed, the adolescents had a relatively high level of concern: Most worried about the destination of their personal data (83%) and believed that one way to mitigate the uncertainty related to it is to better understand the recommendation systems of short video platforms (84%).

Consequently, it is concluded that the existence of rules and mechanisms of protection has, in the Brazilian context, become not only a demand of adults and the State but also a desire of adolescents themselves, who recognize the importance of control tools and access to clear information. Therefore, there is an explicit demand for greater transparency into how platform algorithms operate and how personal data is protected. The inevitable question in this scenario is: Who is responsible for providing this information and ensuring adolescents' security in the digital environment?

What is the role of parents and legal guardians, schools, and platforms in ensuring online security?

> "I believe the ideal world would be something collective, because the Internet has become an extension of the real world. So it's not just parents' or even young people's responsibility to be careful about what they post, but everyone's, so we can have a healthier environment" (Male participant, 18 years old, p. 65).

When the debate involves children, it is not uncommon that, due to the need for quick solutions, the answers point to a single agent and ignore the complexity of interactions and the need for coordination among multiple actors. Parents, legal guardians, educational institutions, and platforms themselves are fundamental agents in developing a safer digital ecosystem.[18] However, the study data showed that adolescents usually find obstacles when they resort to these agents in search of support and greater protection.

Regarding the role of parents and legal guardians, the study indicated that the online activities of 58% of adolescents are almost never monitored, and that the social media posts of 33% of adolescents are never monitored. These results reinforce the need for a more active role by adults, not only regarding controlled access to these platforms but also the promotion of regular conversations about digital risks, content, and competencies.

Nevertheless, the Brazilian context reveals a shortcoming that predates this expectation: adults' low digital literacy. According to the *National Functional Literacy Index*,[19] 74% of the people between 30 and 39 years old and 84% of those from 40 to 49 years old do not reach the level described as high digital performance. Consequently, it becomes unrealistic to expect that parents and legal guardians, by themselves, can take on the task of guiding and offering effective support, when many do not have the digital competencies to do so.

Similarly, schools play a fundamental role in raising children's awareness of the use of short video platforms, and this importance is reflected in adolescents' views and perceptions. According to our study, 63% of them believe that "schools should teach more about security and respect on social media", and 53% think that "teachers are important when it comes to talking about security on social media".

Regarding the specific role of companies, adolescents pointed out at least two central demands. The first is for greater transparency about how platforms work: 84% of participants believe it is important to understand how decisions about which content will be made available to them are made. The second concerns strengthening moderation policies to ensure greater protection against harmful materials and prevent such content from remaining available.

These data show that, across all spheres addressed, adolescents identify a need to improve mechanisms of care and accountability. The development of an integrated and intersectoral approach to supporting online security is not only a recommendation from experts but also a perception among adolescents, who identify the specific improvements they expect from each actor. For parents and legal guardians, the demand for opportunities for dialogue and monitoring was evident, despite the challenges posed by low digital literacy. For schools, the responses indicated that they need to assume an active pedagogical role in promoting digital citizenship. Lastly, across platforms, demand for greater transparency in their systems and policies was notable.

[18] The role played by the State was not deeply discussed in this article because, throughout the interviews, we opted to focus our analysis mostly on the role played by parents and legal guardians, digital platforms, and schools.

[19] More information at https://alfabetismofuncional.org.br/dados-inaf-2024.pdf

Final considerations

In the face of ongoing digital transformations, it is indispensable to discuss the use of short videos by Brazilian adolescents and their impact on this age group, including the different spheres responsible for developing and ensuring healthier and safer relationships between this audience and digital platforms. The study resulted in important findings about this phenomenon, but also highlighted how the rapid technological changes have created new challenges and dynamics.

Since the development of this study, the Brazilian context has undergone considerable changes. One of the main alterations was the processing and approval of norms that directly affect adolescents' relationships with the digital environment. Among them, Bill No. 2.628/2022, known as the Digital Brazilian Statute of the Child and Adolescent (ECA Digital), and Law. No. 15.100/2025, which established guidelines about the use of cell phones in schools, stand out. These legal frameworks indicate important progress in consolidating an agenda focused on digital protection of children. However, for these measures to be effective and suitable for the realities experienced by children, it is essential to consider the design and execution of studies such as this one, since they can provide evidence and inputs for policymaking, by governments or platforms themselves, so they are aligned with the needs of this audience and the guarantee of their rights.

Lastly, we emphasize the importance of active listening to children as a fundamental tool for data generation, reflection, advocacy, and policymaking. The principle of our study and this article was the participation of adolescents as experts on the subject, precisely because they are the directly affected individuals and, consequently, are able to discuss and provide information about the use of short video platforms by people of their age group. In addition, they present themselves as the most invested in facing the challenges imposed by this phenomenon. Recognizing that they occupy this position means that truly effective solutions can be developed only with, not just for, this audience.

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List of Abbreviations

A4AI — Alliance for Affordable Internet

AI — Artificial Intelligence

Abep — Brazilian Association of Research Companies

ANPD — National Data Protection Authority

APA — American Psychological Association

AS — Autonomous Systems

BNCC — National Common Curriculum Base

CAPI — computer-assisted personal interviewing

CASI — computer-assisted self-interviewing

CCEB — Brazilian Economic Classification Criteria

CDC — Consumer Defense Code

CNEFE — National Address File for Statistical Purposes

Ceptro.br — Center of Study and Research in Network Technology and Operations

CERT.br — Brazilian National Computer Emergency Response Team

Cetic.br — Regional Center for Studies on the Development of the Information Society

Ceweb.br — Web Technologies Study Center

CGI.br — Brazilian Internet Steering Committee

CNE — National Education Council

CO:RE — Children Online: Research and Evidence

Conanda — National Council for the Rights of Children and Adolescents

Continuous Pnad — Continuous National Household Sample Survey

ECA — Brazilian Statute of the Child and Adolescent

ECA Digital — Brazilian Digital Statute of the Child and Adolescent

Enem — Brazilian National High School Exam

FIB — Brazilian Internet Governance Forum

FGV — Getulio Vargas Foundation

IBGE — Brazilian Institute of Geography and Statistics

ICT – information and communication technologies

IPU — iterative proportional updating

ITU – International Telecommunication Union

IXP – Internet exchange point

IX.br — Brazil Internet Exchange

LDB — Brazilian National Education Guideline and Framework Law

LGPD — Brazilian General Data Protection Law

LSE — London School of Economics and Political Science

MCTI — Ministry of Science, Technology, and Innovation

MDIC — Ministry of Development, Industry, Trade, and Services

MEC — Ministry of Education

MF — Ministry of Finance

Mercosur — Southern Common Market

MST — minimum spanning tree

NIC.br — Brazilian Network Information Center

OBIA — Brazilian Artificial Intelligence Observatory

Ofcom — Office of Communications

PSU – primary sampling unit

Secom — Social Communication Secretariat of the Presidency of the Republic

TJSP — Court of Justice of São Paulo

UF — federative unit

UN – United Nations

UNICEF — United Nations Children's Fund

unesco
Centre
under the auspices
of UNESCO

cetic.br
Regional Center for
Studies on the
Development of the
Information Society

nic.br
Brazilian Network
Information Center

cgi.br
Brazilian Internet
Steering Committee