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# Reflections on the abuse of screens by children in early childhood

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**ABSTRACT**
The present work presents aspects about the evolution of electronic devices in our routine and, above all, in the routine of children. These electronics have become increasingly present in children's routine: either as an educational mechanism or as a means of entertainment (which has been happening ever earlier). This acquisition of "screens" has turned play (which was previously the only way to entertain children) into the background: today, everything is increasingly technological and digital, and play is a means of development of paramount importance in childhood: it sharpens imagination, growth, inclusion in groups, language and behavior.

**Keywords:** Electronics, Cognitive Development, Child, Use of screens.

## 1 INTRODUCTION

After years of technological evolution, electronic equipment was invented to facilitate our progress, among so many devices, televisions, cell phones, tablets, notebooks and video games are present in our daily lives, almost always in our pockets. Screens that were previously restricted to television have evolved and have been incorporated into the routine of people from different social backgrounds and age groups, due to their easy portability and usefulness, including in children's routines (NOBRE *et al,* 2021).

In recent years, there has been an increase in the consumption of electronic content and screen use by children. It is believed that this is a consequence of the progression of globalization and the increase in access to technology by the population, which increasingly offers it to its children (COSTA *et al, 2021* apud *DOMINGUES-MONTANARI, 2017).*

The emergence of the internet, in the 60s, is pointed out as a great milestone to make the use of cell phones something immensely interesting for people (OLIVEIRA *et al* 2021).

Electronic devices have become part of children's routines. Whether as an educational or entertainment method, including in the first months of life, which goes against the recommendation of the American Society of Pediatrics – AAP, (2020) and World Health Organization – WHO, (2019), as well as the Brazilian Society of Pediatrics – SBP, (2021), which highlights that babies under 1 (one)

year old should not be exposed to any type of screen and children from 2 (two) years old to 4 (four) years old on screen should not exceed one hour.

Playing, previously the only way to entertain children, loses space to this new technologies, however, thinking like the English psychoanalyst Donald Woods Winnicott, this absence or reduction of play should be widely studied and discussed, because he raises in his work that games are means of development in childhood and that playing is a basic way of living, universal and proper to health, which facilitates growth and leads to group relationships (WINNICOTT, 1975).

Pretend play demands much more cognitively, emotionally, and even physically from a child than the passivity found today in toys where smart technologies exist (BORBA, 2022). Imagination, creativity, attention, social interaction, cordiality, problem solving, body knowledge, motor skills, among many other skills, have their development strengthened during the process of playing.

Another very important characteristic that playing brings to child development is the interaction with parents and/or guardians, and this moment is a great strengthener of their bonds and the creation of strong emotional bonds (WINNICOTT, 1975). So if these playful moments are decreasing, most likely the contacts between parents and children are also decreasing.

In addition to the importance of playing, child development authors such as Papalia and Martorell (2021) state that it is in first and second childhood, from birth to around six years of age, that the child's psychomotor, cognitive, and social development takes place, through stimulation, experimentation, and interaction, which can be influenced by the excessive use of digital technologies, since, as previously stated and which will be discussed throughout this work, the children of the so-called generation Z are connecting earlier and earlier and for much longer.

The connection of children to electronic devices, which was already happening in a comprehensive way, took on new proportions after facing a pandemic in recent years. Access to screens by minors has increased due to online classes (PONTE and NEVES, 2020). This has made a situation that already existed take on even greater proportions today, leaving children increasingly exposed to technologies.

Thus, considering the relevance and contemporaneity of the theme, even more so after a pandemic period experienced by us, the present study aims to investigate what consequences the excessive use of screens can cause in children, especially with regard to their cognitive development.

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The present work aims to present information about the influence of screens in early childhood, and what impacts it has on children's cognitive formation. We know that nowadays access to screens is increasingly common and frequent (whether for entertainment, for study, for games, etc.) and this was

not far from children, who are increasingly having contact with digital (from that little movie to calm the crying to "educational" electronic games).

## 2 METHODOLOGY

The methodology used consisted of a systematic review of the literature, which uses data that have been published, allowing the author to delve deeper into the problems that are known as well as to explore new themes that are still on the theme that he will present in his work (MARCONI; LAKATOS, 2017).

Scientific articles, according to Marconi and Lakatos (2017), are priorities for researchers, because they are where more up-to-date scientific knowledge can be obtained. These were found in the Scielo, Bireme, PubMed, Google Scholar, and PePSIC databases. As a criterion for selecting material for research, a time frame was established from 2016 to 2022 and in Portuguese-language texts. The descriptors "Screens and children's cognitive development" and "electronics and children's cognitive development" were used. The electronic search was conducted from February 2022 to June 2022.

The following exclusion criteria were adopted: a) technologies developed for schools (such as specific games for development within the school environment); b) use of technologies with a population over seven years of age; c) article that deals with a specific disorder (such as language); d) articles that have restricted content (specifically focused on the areas of speech therapy, or game designer).

## 3 RESULT

Between 2016 and 2022, approximately 16,000 texts were found as results when conducting the bibliographic search with the descriptors "Screens and children's cognitive development" and "electronics and children's cognitive development".

When refining the search for the terms "screens" and children's "cognitive development", the result of articles falls around 1,900, whose areas of research are diverse. Research papers were found in the areas of Speech-Language Pathology and Audiology, Nutrition, Pediatrics, Physiotherapy, Pedagogy, Game Design, Information Technology, Computer Engineering and Psychology, the area of greatest interest for this research.

As the demand for articles found was vast, those that best matched the research subject of this study were selected. The eleven articles were listed, the most interesting and the most in accordance with the central idea of the research that was carried out here.

Table 1 - Articles selected by author/year, title, objective, methodology, and conclusion.

| AUTHOR/YEAR | TITLE | OBJECTIVE | METHODOLOGY | CONCLUSION |
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| Maria do Carmo Batista Arantes; Eduardo Alberto de Morais (2021) | **MEDIA DEVICE EXPOSURE AND USE IN EARLY CHILDHOOD** | To assess exposure and characterize the use of media devices by children from zero to six years of age | A descriptive and investigative study on the use of screens in children in early childhood, treated at the pediatric unit of the Regional Hospital of the State Health Department of the Federal District (SES-DF). Data collection was based on a questionnaire applied to the guardians (over 18 years of age) of the children treated at the health unit from August to November 2020. | Pattern of inappropriate use of media by the children in the study, characterized as the beginning of early, frequent and excessive use. |
| Nicolle Barassa Ventura Carvalho, Viviane Caroline de Paula da Silva, Maria Cristina Marcelino Bento (2016) | **CHILDREN'S USE OF MOBILE DEVICES — A CASE STUDY** | Check how excessive use of mobile devices can be detrimental to a child's development | A descriptive research through a case study, using a mapping carried out with the help of parents and/or guardians, where four children aged between four and eleven years were followed in their own homes. The research instrument for this case study was organized based on tables, with questions raised from dialogues between the authors. This mapping lasted forty-five days, starting in July and ending in August. | The excessive use of mobile devices is indeed harmful to the biopsychosocial development of the child. |
| Elise de Moraes, Tainara Paula Bavaresco, Tania Mara Bavaresco. (2021) | **YOUNG CHILDREN VS. SCREENS AND ELECTRONIC DEVICES: A DEBATE BASED ON ARTICLES FROM CRESCER MAGAZINE** | Understand and problematize the exposure of young children to electronic screens, based on the analysis of articles published by Crescer Magazine – published between 2014 and 2020 | Qualitative research with analysis of articles published by Crescer Magazine in the period from 2014 to 2020. | The use of digital technologies awakens both positive and negative positions. |
| Thaís Aparecida Ferreira Costa, | **IMPACT OF TECHNOLOGY USE ON CHILD** | To address child development in the motor and | Exploratory systematic review, including articles, | The cyberculture experienced |

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| Auxiliatrice Caneschi Badaró. (2021) | **DEVELOPMENT: A LITERATURE REVIEW** | cognitive aspects, based on Jean Piaget's developmental stages for children from zero to seven years of age | dissertations and theses, was used in the following databases: PubMed, Scielo, CAPES, Virtual Health Library (VHL-BIREME), Lilacs and Pepsic published in the last five years. Only the articles in Portuguese were filtered, based on the descriptors "child development", "technology", "childhood", "child cognition", "impact", "cognition" and "cognitive impact". | today has provided less and less social interaction and the development of skills necessary for full development |
| Priscilla Maria Faraco Rosa, Carlos Henrique Medeiros de Souza (2021) | **CYBERADDICTION AND CHILDHOOD: THE INFLUENCES OF DIGITAL TECHNOLOGIES IN THE DEVELOPMENT OF THE CHILD** | To highlight the insertion of the Technologies in their relationship with childhood today | Bibliographic and documentary research that was developed in the master's thesis, and has as its central theme to understand the insertion of digital technologies in childhood. | To think of measures and actions that promote access in a healthy way of technologies |
| Danielli Taques Colman, Sirlei de Proença (2020) | **SCREEN TIME AND EARLY CHILDHOOD** | Reflect on questions about children's early exposure to screens, as well as the harm they can cause to early childhood infants | For this work, exploratory research was used as a methodology, because "it aims to provide greater familiarity with the problem, with a view to making it more explicit or to constitute hypotheses" (GIL, 2002, p. 41). This research can be considered qualitative and bibliographic, having as its primary source the opinions and guidelines prepared by the World Health Organization (WHO), the Brazilian Pediatric Society, the studies of the theorists Wallon, Piaget and Ajuriaguerra, as well as articles and dissertations that | Prolonged use of screens can cause numerous health problems, such as: speech delay, learning difficulties, obesity, sleep problems, vision, among others. Too much exposure does not do any of the people any good, nor will it do children who are in the process of neurological, motor, psychic and social formation. |

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| | | | contemplated the theme. | |
| **Juliana Nogueira Pontes Nobre, Juliana Nunes Santos, Lívia Rodrigues Santos, Sabrina da Conceição Guedes,** Leiziane Pereira, Josiane Martins Costa, Rosane Luzia de Souza Morais (2021) | **DETERMINANTS OF CHILDREN'S SCREEN TIME IN EARLY CHILDHOOD** | Investigate the determinants of screen time, understood as the total time for which the child remains exposed to all screens, including television and interactive media | A cross-sectional, descriptive and exploratory study investigating screen time included children aged between 24 and 42 months and 15 days, regularly enrolled in public and private daycare centers in the headquarters of a small Brazilian municipality with a high Human Development Index (HDI), from September 2016 to February 2017 | The children in the present study had screen time above the recommended for their age. Television was also the main responsible for children's exposure to screens |
| Tawanna Pereira Passos, Larissa Seabra Toschi (2021) | **USE OF SCREENS IN CHILDHOOD: A LITERATURE REVIEW ON RISKS AND IMPAIRMENTS FOR COGNITIVE AND LINGUISTIC DEVELOPMENT** | Investigate the problems or consequences in cognitive and linguistic development linked to the digital age, more specifically to abusive exposure to screens. | Literature review in national and international literature in the following databases: SciELO, MEDLINE and CAPES. The following descriptors were used: 7 "digital media and language delay", "screens and cognitive delay", and "language delay and screens". As inclusion criteria, the articles should deal with the theme and be between the period 2005 and 2021. | It has been found that screens bring cognitive and linguistic risks and impairments if used during childhood |
| Maressa Ferreira de Alencar Rocha, Rebeka Ellen de Alencar Bezerra, Laura de Almeida Gomes, Alice Lins de Albuquerque Cavalcanti Mendes, Alinne Beserra de Lucena ( 2022) | **CONSEQUENCES OF EXCESSIVE USE OF SCREENS FOR CHILDREN'S HEALTH: A REVIEW INTEGRATIVE LITERATURE** | Understand the effect of screen use on childhood and its consequences | An exploratory research of the integrative review type regarding the consequences of early exposure to screens for neuropsychomotor development in childhood. | Existence of influence of the use of screens in the neuropsychomotor development, as well as the consequence of the use of screens in the daily habits of the childhood, with an indirect influence on children's development. |
| Gabriela Cristine de Oliveira Mota (2021) | **EXPOSURE TO SCREENS: THE DIGITAL AGE AND ITS EFFECTS ON** | To investigate and discuss the use of digital devices by children aged 0 to | Qualitative research, of the bibliographic type, which is based on studies and references related to | By investigating the digital and/or media effects that can affect |

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| | **THE DEVELOPMENT AND LEARNING OF CHILDREN AGED 0 TO 5 YEARS** | 5 years, related to exposure to screens and their potential to impair development and learning | the theme, as well as on theoretical sources such as articles, books and academic research. | development and learning, it was concluded that they can be harmful agents if used in an unbridled manner |
| Janice de Oliveira Borges, Mariane Silva Bueno Braga Àvila (2021) | **THE IMPACTS OF ELECTRONICS USE IN EARLY CHILDHOOD (0 TO 3 YEARS)** | Impacts of the use of electronics on the importance of lived experiences in the period from 0 to 3 years | Exploratory method, through literature review and analyzing the knowledge and statements of authors in the areas regarding each topic, it becomes possible to have a clearer understanding so that a better reflection on the question in question occurs. | Children thrive by doing, exploring, and interacting, and media use impairs this interaction. |

Source: Authors (LOPES and SILVA, 2023)

## 4 DISCUSSION

The results obtained through the literature search bring important considerations regarding the use of electronic devices by children and how much this can influence the cognitive development of minors.

Arantes and Morais (2021), show through the data obtained in their research a high prevalence of media device use by children. According to the authors, 100% of their interviewees, i.e., 102 children, confirmed the use of some type of media device at least once a day.

This result corroborates the study by Nobre et al (2021), where the researchers showed that around 94.5% of children up to 03 years of age had access to the use of cell phones, *tablets*, televisions or computers.

In both studies, the minimum age of exposure was less than two years, as stated by Arantes and Morais (2021), where 83% started using it with less than one year of life. This result shows that parents or guardians are not taking into account the guidelines of the Brazilian Society of Pediatrics, together with the World Health Organization and the American Society of Pediatrics.

Colman and Proença (2020) also bring similar results in their work, where they present and certify that children who are months old already have access to the use of technological devices. The authors also bring up another important and worrying point, which is the amount of time that these children are using these devices.

Arantes and Morais (2021) state that regarding the time of exposure, the data obtained through work indicate that approximately 58% of children use media devices for more than 2 hours/day, corroborating the findings described by Nobre et al. and by Colman and Proença.

Nobre et al (2021) also conducted a study regarding the amount of time children use screens per day. According to the authors, 63.3% of children spend much more than two hours a day in front of screens, which again goes against what is recommended by experts. Also according to the study carried out by Nobre and collaborators, the devices most used by children are television, smartphones and tablets.

According to the study published by Colman and Proença (2020), neuroscience has been analyzing the impacts that excessive use of screens can have on children. The authors mention that, through volumetric tests, the more time the child spends using screens, the more their cerebral cortex is, that is, if it is linked to cognition, it is possible that this negatively affects children and their development.

Another fact that should be considered and discussed is how children are having access to these devices, since these are young children. In this regard, Arantes and Morais (2021) bring the worrying data that access to these devices is overwhelmingly encouraged by parents, mainly as a way of distraction and to calm and silence children and do not do it in a pedagogical way as it should be done. Unsupervised use also happens in large numbers of cases.

In his work, Mota (2021) brings the information that the use of screens before the age of two most likely does not bring significant contributions to child development. On the contrary, it states that unbridled use and without supervision by a guardian can block learning, psychomotor skills and sociability.

In line with the aforementioned studies, Carvalho *et al* (2016) also confirm that the excessive use of mobile devices is harmful to the biological, psychological and social development of children. It is also mentioned that the areas of memory, concentration, sleep impairment, agitation, obesity, are some of the negative consequences that can cause children.

Several authors mentioned these same areas as the main ones affected by the excessive use of cell phones, televisions and computers.

In addition to the problems related to cognition, it is very clear during the research that physically and emotionally children are also negatively influenced by the excessive use of technology. Information retention, sleep disturbances and aggressiveness are the first problems that arise, and consequently social interaction is impaired (CARVALHO et al, 2016).

Obesity and motor difficulties also appear in several studies as a consequence of the indiscriminate use of devices, with children's preference being to play and watch videos to the detriment of playing, practicing physical activities and interacting. Rosa and Sousa (2021) corroborate this idea by saying how much children are inserted in digital culture and how much this generation is dependent on devices.

As for the benefits of the insertion of children in the technological age, the authors do not present many positive indications. There is more concern about the problems caused by overuse than agreement about the benefits.

Arantes and Morais (2021) show that the use of tablets can be considered a useful technological resource for visual and tactile stimulation of children between two and three years of age, but this should be carried out in a supervised and controlled manner.

In the work of Moraes *et al* (2021), the fact that technological resources can serve as a pedagogical tool, innovating teaching methods and consequently learning, being possible through technology to get to know other cultures, have access to information faster and enable a new teaching method. Which can be seen widely in this pandemic period.

The studies were consonant in bringing up the many issues in which the excessive use of screens can be harmful to children, however they still bring the discourse that if carried out properly it is possible to find some benefits in the use of technological devices. The supervision of those responsible for the use, the amount of time and the age of the children form the essential triad to know whether or not it is convenient for children to use these devices.

## 5 CONCLUSION

It is a fact that technology is now part of children's routine, whether as a means of distraction, when it is necessary for children to be silent or sitting, or for parents to be able to carry out their daily activities, or as a means of studying, as seen in recent years due to a pandemic that has surrounded us.

The place that technology has taken in families is gigantic, and in many homes it is the manager of how things will work. Unfortunately, all this importance does not escape children.

It was seen throughout the present work how early children are being presented with screens and how much this amount of time is increasing, being too common for children under two years old to spend more than two hours a day taking turns between television, cell phones and tablets and to make matters worse, in the overwhelming majority these devices are presented by the parents themselves as a distraction strategy for the little ones.

In most of the articles, the researchers pointed out how much excessive use of screens has cognitively impaired children, leaving them more dispersed, irritable, with language problems and not very creative. In addition, it is clear the increase of children who have difficulty in interpersonal relationships due to the excessive use of screens, as well as the growing number of motor difficulties and obesity linked to technologies and a decrease in play by children.

Despite some benefits that the use of screens can bring to children, their harm when used in an unbridled and unsupervised way is much greater and more significant in children's cognitive development.

What we have seen are children who no longer play, who do not use their imagination, who no longer run, who do not practice physical activities, who have difficulty in reading because the automatic of cell phones no longer requires this challenge from them, they have difficulty in motor coordination and consequently in writing, since they type much more than they write.

And the most dangerous thing seen quite often is the virtual addiction that children have been suffering due to the excessive use of technologies. These children cannot cope with not using these devices, and exhibit irritable and aggressive behavior, which has significant effects on the brain.

In view of all the above, it is extremely clear that there is a need to measure the use of screens by children, in addition to avoiding as much as possible the early presentation of screens to children. Responsible adults should not outsource children's fun and entertainment to screens, as this has had negative impacts on the cognitive, social, and physical development of minors.

Finally, it is necessary that this theme be increasingly studied and explored by the various areas of human knowledge, because the influence of the new technology and its effects affect children in the most varied areas of their development and can cause even more damage than is already known by science.

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