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ARTIGOS

Family and school mediations between children and digital technologies [1] [2] [3] [4]

Mediações familiares e escolares entre crianças e tecnologias digitais

Mediaciones familiares y escolares entre niños y tecnologías digitales

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Abstract
This article discusses family and school mediations between children and digital technologies, the challenges they face and their possible implications. It is based on a qualitative study that used various methods: questionnaires issued to family members, interviews with teachers, a study group and a focus group with family members and teachers. Regarding skill-developing and/or restrictive mediations observed in the study, it stands out that: the children use digital technologies from an early age, but adults do not always perceive their risks and opportunities; and schooling and social class do not seem to be determinant in the quality of the mediation conducted. Finally, some considerations revise the discussion about the uses of technologies and their family and school mediations in the context of the Covid-19 pandemic.
Keywords: children, digital technologies, family and school mediation

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Resumo

O artigo discute as mediações familiares e escolares entre crianças e tecnologias digitais, seus desafios e possíveis implicações a partir de uma pesquisa de abordagem qualitativa com uso de métodos mistos: questionários aplicados aos familiares, entrevistas com professoras, um grupo de formação e um grupo focal com familiares e professoras. Em relação às mediações capacitadoras e/ou restritivas observadas na pesquisa, destaca-se que: as crianças usam tecnologias digitais desde cedo, mas os adultos nem sempre percebem seus riscos e suas possibilidades; a escolaridade e a classe social não parecem ter sido determinantes na qualidade da mediação realizada. Por fim, algumas considerações atualizam a discussão dos usos das tecnologias e suas mediações familiares e escolares no contexto da pandemia de Covid-19.

Palavras-chave: *crianças, tecnologias digitais, mediação familiar e escolar*

Resumen

El artículo analiza las mediaciones familiares y escolares entre los niños y las tecnologías digitales, sus desafíos y posibles implicaciones, a partir de una investigación cualitativa que utiliza métodos mixtos: cuestionarios con familiares, entrevistas con profesoras, un grupo de capacitación y un grupo focal con familiares y profesoras. Con respecto a las mediaciones formadoras y/o restrictivas observadas en la investigación, se destaca que: los niños usan tecnologías digitales desde una edad temprana, pero los adultos no siempre perciben sus riesgos y sus posibilidades. La escolaridad y la clase social no parecen haber sido determinantes en la calidad de la mediación realizada. Finalmente, algunas consideraciones actualizan la discusión sobre los usos de las tecnologías y sus mediaciones familiares y escolares en el contexto de la pandemia del Covid-19.

Palabra clave: *niños, tecnologías digitales, mediación familiar y escolar*

Digital culture, children, and mediations

Digital culture has been imprinting its marks in contemporaneity, changing cultural practices, and offering new social spaces of interaction, socialization, and learning. However, the new forms of interaction and participation allowed by the unequal access of convergence culture reveal notions of belonging and exclusions, establishing a *digital divide* (Fantin & Girardello, 2009), which distances even further those already excluded, now by the digital technology and connectivity.

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In the first decade of the 21st century, the data on the map of digital exclusion and inclusion in Brazil point out that 33% of households were connected to the internet and around 67% were not (Neri, 2012). According to the research *TIC Domicílios*, released by the *Centro de Estudos sobre as Tecnologias da Informação* (Cetic) and the *Comitê Gestor da Internet do Brasil* (CGI) (Cetic/CGI, 2017), there was a meaningful increase in the access, with around 61% of connected households, but 39% of the population with 10 years or more still had no access to internet (Amorim, 2020). In 2018, according to the research of Cetic/CGI (2019), connectivity by household increased to 67%. Together with this, the research of *Instituto Brasileiro de Geografia e Estatística* (IBGE) (PNADC, 2019) points out that there is still 21% of the population without connection. Among these data, we also have to consider the socioeconomic and regional differences in the country. The research of Cetic/CGI (2019) points out that internet access is almost universal for classes A (92%) and B (91%); class C has 76% of access, a number that drops to 48% in the classes D and E, with a tendency to increase for the access only by cell phone and *Wi-Fi*. IBGE (PNADC, 2019) shows that the Southeast and South regions are more connected than those in North and Northeast. Such aspects need to be considered in the analysis that seek certain generalizations.

Regarding age and access to internet, 90% of those accessing the internet are between 16 to 24 years old; after, 86% between 25 and 34 years old; 83% between children and teenagers from 10 to 15 years old; 80% between people of 35 to 44 years old; 61% in the age range between 45 and 59 years old; and 28% of those over 60 years old (Cetic/CGI, 2019). In this scenario other data, released due to the Covid-19 pandemic and the (im)possibilities of remote learning in public schools, refer to access issues, as shown in the last PNAD (*Pesquisa Nacional por Amostra de Domicílios*) which points out that 21% of students from 5 to 17 years old in public schools had no access to the internet (IBGE, 2018); and according to data related to High school students enrolled in the *Exame Nacional do Ensino Médio* (Enem) of 2018, around 33% had no internet connection. If we consider broadband internet in schools, we will see that inequality is even higher, the data of *Ministério da Educação* (MEC- Ministry of Education) of 2018 show that, while 93% of schools in the state of São Paulo internet, in Amapá this percentage is of 14%. That is, the realities are very different, but not always considered in certain 'easy analysis' that suggest that 'everyone is connected'.

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Regarding the ways to access internet, the *smartphone* (98%) emerges as the main device, followed by the (decreasing) use of computer, which has gone from 51% in 2017 to 43% in 2018 (IBGE, 2019), and by the (increasing) connectivity through *SmarTV*, which has grown from 8% in 2017 and 2018, and reached 30% (Cetic/CGI, 2019). Regarding the possession of their own *smartphone*, there has been an expressive increase in the age range between 0 to 3 years old, in which 10% of individuals have a device, an index that reaches 23% among 4 to 6 years old; and 44% between 7 and 9 years old; and 72% between 10 to 12 years old (Mobile Time, 2018).

As this scenario differs from country to country, as shown by Fantin (2018), it is intriguing to think about the statistics that place Brazil in the second place in the worldwide ranking of access of YouTube channels (Monteiro, 2018) and about the implications that such data can mean to children.

After all, there is no way to separate the concepts of children from the conditions of childhood, which are lived in different times and scenarios in which many narratives refer to children as 'mini *youtubers*', 'mini digital *influencers*', 'consumers of screens and cultural industry'. Many positions adopted by children in these contexts blur certain frontiers since the electronic and the digital with the so-called "end of childhood" (Postman, 1999) up to the "growing in digital eras" (Buckingham, 2007), beyond the generational, class, public, and private aspects,

> creating new conditions, in which the dependence of children become more problematic and their participation can be built and amplified. Technological toys, technologies of information and communication, technologies of human reproduction, cloning, pharmaceuticals, among other techniques are changing the ways children are, their role, and the statute of childhood in contemporary societies, destabilizing limits and oppositions considered as evident and guaranteed in modernity. (Belloni, 2007, p. 77).

Thus, understanding children today implies realizing the plurality of aspects and conditions present in the ways childhood live faced by digital culture and the "digital coding and articulation in network", which create other forms of relating, creating, making, and producing, "which were not imagined in an analogical context" (Bonilla & Pretto, 2015, p. 500). Beyond the rhetoric about "digital natives and immigrants", terms that have been deconstructed by various studies (Buckingham, 2010; Fantin, 2016; Rivoltella, 2012; Selwyn, 2009), it is important to consider economic, social, and cultural aspects, besides the generational issue.

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The many possibilities of technology use reveal that being connected is to enjoy multiple interactions, "communication processes, experience, involvement, production, and socialization of these productions, in a multidimensional perspective, and non-linear" (Sampaio & Bonilla, 2012, p. 101). Similarly, they imply new ways of belonging, because digital culture involves "a system of values, symbols, practices, and attitudes…a phase of technology, but fundamentally a system of practices and values that are in permanent dispute in contemporary life", in which the essence of transformation takes place in the "culture of networks, sharing, collective creation, and convergence" (Manevy, 2009, p. 35).

Digital culture involves a system of operating participative forms, in which convergence, accessibility, connectivity, portability, and personhood, in the sense of personal use (Fantin & Rivoltella, 2009), can be understood as their characteristics. In digital culture, technologies converge (Jenkins, 2006) and allow children, young people, teachers, and adults in general to create, recreate, and interact in different scenarios and spaces, *online* and *offline*, which consume, produce, and share contents in a society in network and of consumption, creating strategies to incite the most diverse wishes (Fantin & Rivoltella, 2012, Muller, 2014).

Faced by the diversity of childhood practices that involve traditional plays, electronic, and digital ones, the "digital plays" encompass interactions with more active postures (Gee, 2009), aligned with passive attitudes, for example, to watch and consume *YouTube* videos that allow playing and doing, watching other children play, or teach-learn (Fantin & Muller, 2017). Thus, sometimes watching something on *YouTube* or on the internet can become a play in itself. Children reinterpret aspects of a broader culture in peer culture (Corsaro, 2011), they also (re)produce meanings as social actors in the relations intra and intergenerational. They influence and are influenced and, thus, can homologate or alter the spaces of childhood (Ferreira, 2010).

The different ways of being a child in contact with digital screens reveal that playing and socializing are established in a different way and the plays/games, as well as the different analogic and digital technological artifacts, stand out by promoting mediations and other forms of participation in contemporary times. In the specificities of children's cultural practices, the mediations assume a relevant role in the perspective of media-education (Belloni, 2009; Rivoltella, 2012), mainly to guarantee children's rights regarding media, as the three Ps-Protection, Provision, and Participation – understood in their tensions and interdependencies (Buckingham, 2007; Pinto & Sarmento, 1997; Prout, 2010).

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We understand then that mediations take place differently in different social, economic, and cultural contexts and their respective particularities. Even if emphasizing the mediations of culture, media, institution, groups, peers, and also technology itself (Martin-Barbero, 2001; Orozco, 1997), sometimes, certain digital technologies have also been understood as an "extension of the body" (McLuhan, 2007), which imply thinking certain processes of de-mediation, as suggested by Eugeni (2015).

When resuming the different senses of mediation in authors such as Martin-Barbero (2001), Silverstone (2005) and Orozco (1997), Fantin (2020) reminds us that mediation involves the work of institutions, groups and Technologies, if we are all mediators, if mediation implies transformation of meaning in different contexts, discourses, and events, so the mediation also implies negotiation. In this sense, educational mediation, in the formal and informal scope, is the one that promotes and build meanings but also transformations between people, groups, and their surroundings, as pointed out by Fantin (2020). And, being a mediating political and pedagogically (well) informed activity, the mediation can also be understood as a formative process, says the author.

In the understanding of mediation between children and screens, Tisseron (2016) highlights the meaning of negotiation and the importance of negotiating "when and how" to insert screens in children's lives, so that they can learn how to use them in a healthy way. When proposing different possibilities of mediation depending on the age range, the author suggests that such mediation implies Self-regulation, Alternation, and Follow-up. On its turn, Livingstone (2017) emphasizes the mediation on two perspectives, the capacitating one (talk, encourage, council) and the restrictive one (insist, prohibit, restrict), as an unfolding of the previous work, which mentions the dimensions of shared use, restriction of time and content, technical restriction, and monitoring (Livingstone & Helsper, 2008).

Therefore, the omissions, the permissiveness, and the lack of reflection on the incentive of children's consumption of technologies since their first years question the meanings of mediation faced by children's rights. They also question the so-called "digital natives", considering that, regarding technologies, certain representations that children "already know" better than adults and about how they "still do not know" refer to other factors, which interfere in the construction of media and cultural practices (Buckingham, 2010; Rivoltella, 2012).

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With or without adult mediation, the research data of TIC Kids Online (Núcleo..., 2018) – conducted with children and teenagers from 9 to 17 years old– indicated that the use of digital technologies have been happening increasingly earlier, in a space where opinions, practices, and different narratives are constructed, in a connectivity that happens mainly through *smartphone*, followed by the use of *tablet*, and *videogame*.

In this context, family and school mediations could work for children to explore connectivity freely as well as to restrict their uses, or even to promote other possibilities from the incentive of different plays/games, digital or not, in favor of multiple languages and a balanced use of screens. That is, on one hand the presence of a sensible and qualified adult can contribute to enrich cultural, ludic, and participative practices from the potentialities offered by digital technologies, On the other hand, the lack of mediation can have serious implications and compromise the rights of protection and provision of children, for example.

Thus, the relation between children and digital technologies surpass the scope of childhood, mainly when connected to adult mediation, be it when restricting technology for considering it a risk, or when encouraging and capacitating children to consider their possibilities (Livingstone, 2017). However, mediation transcends the family and school sphere when involving negotiation, participation, and transformation of meanings (Silverstone, 2005) in different educational and social practices, seeing that it is a responsibility of the whole society, as stated by Tisseron (2016).

Intending to know more about these mediations, we conducted an empirical research, which we will present further on.

Approximations to families and teachers: methodological pathways

To better understand the mediations of uses of digital technologies by children, the research sought to guarantee a space of dialogue and interaction with families and teachers. Thus, the empirical phase of the research, a qualitative approach (Bogdan & Biklen, 1994), used a diversified combination of methods and techniques (Creswell, 2010). In 2016, we started the research with an exploratory mapping (Severino, 2007), with the application of questionnaires

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(Q) and interviews (I). In the following year, we deepened the data with the *Formation group* (FG) – composed by Pedagogy students (PS), teachers, (T), and family members (F), – which was resumed and concluded in 2018, with a Focal group (FoG), and recorded in field notes (FN). Thus, the building and interpretation of data, of different origins, establish some approximations to the methodology of bricolage (Kincheloe, 2007).

The exploratory mapping was conducted in two public schools in Florianópolis, SC, Brazil, to where we sent 159 printed questionnaires, targeting students' families – out of these, only 55 returned. We also conducted 4 interviews with the teachers of children between 5 and 8 years old, to "raise information written by the researched subjects, aiming to know their opinion on the subjects studied" (Severino, 2007, p. 125). Such instruments allowed an approximation of different sociocultural, economic, and technological realities of the research subjects and allowed the perception of aspects of adult mediation and diversity of consumption of technologies, besides the interest to participate in a formation about the practice.

The profile of family members with children from 5 to 6 years old, in Early Childhood Education (ECE) indicated they had younger siblings, fathers and mother between 31 and 40 years old, who worked as teachers, security guards, and musicians; some had a post-graduation level, with a family income over R$ 8.800. Out of the 9 participant families, 4 affirmed they were interested in participating in a course about the use of technologies.

The profile of families with children with ages from 6 to 8 years old, who attended the early years of Elementary Education (EE), showed that fathers' ages ranged between 20 and 40 years old, and worked as painters, drivers, cleaning aids, and security guards, while the mothers, ranging from 20 to 30 years old, were cleaning ladies, cleaning aids, and clerks. Schooling, in most cases, was incomplete elementary/middle school, followed by complete and incomplete high school. Most had an older brother and younger sister. Family income ranged between R$ 1,660 and R$ 2,640. Out of the 46 participant families, only 7 were interested to participate in the formation.

In the exploratory mapping few families were interested to participate in the formation, because most worked full time and had no time to participate in the meetings.

About the interviews, the two ECE teachers were over 40 years old, 10 years working in K-12 education and had a doctorate in Education. The teacher of the Work Group (WG) 5 considered the theme of digital technologies between secondary compared to the demands of

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her routine. The teacher of WG6 was interested and had already participated in a research on the use of *tablets*, computers, and *laptops* in a school. The two teachers of EE had specialization degrees, between 30 and 40 years old, and worked for over 20 years in Education. Both were interested in participating in the formation, as they used technologies in the classroom in a ludic perspective, for example, offering games.

Thus, invited by a municipal college of the great area of Florianópolis, it was possible to hold the FG targeting K-12 teachers, from 22 to 45 years old, who were also students in a Pedagogy degree – some of them were also mothers, in a total of 18 participants. The FG involved theoretical reflections; practical activities on different plays/games and the consumption of technologies by children; interviews with their sons/daughters or other children about what they did online, participation when building digital games, and other games to their respective students; and proposals of mediating activities from a film watched with children.

After a year of FG, we contacted other participants and held a FoG with five of them, to resume and deepen some questions, to perceive possible changes or consolidate mediating practices among family members, considering that they were also teachers and/or students. The FoG "besides helping obtain different perspectives on the same question, also allows the understanding of shared ideas by people daily and the ways through which people are influenced by others" (Gatti, 2005, p. 11).

According to the data informed in the questionnaires, participants of this group were between 31 to 40 years old and the family income was between 1 to 5 minimum wages. Only 1 participant was studying Pedagogy, the others have already graduated higher education: 2 in Pedagogy and 2 in Letters Portuguese/English – out of those, two had a post-graduation diploma. Only one participant did not have contact with children and teenagers (from 2 to 16 years old) in their family and school contexts.

The use of different research methods and instruments, as it is common in bricolage, involve the analysis and crossing of data obtained by different instruments, what enriches, but also complexifies the interpretation. Thus, in the focus of this article, we will highlight the relevance of the discussion on the mediations of family and school spheres from the data collected in different moments of the empirical research: exploratory mapping with questionnaires and interviews, formation group, and focal group.

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Family and school mediations between children and digital technologies

To notice the different forms of mediation between children and the uses and consumptions that children make of different digital technologies, their times, spaces, and the meaning of such practices, we will discuss the data from the exploratory mapping, the formation group, and the focal group, as previously indicated.

In the exploratory mapping, done through the questionnaires sent by the families with children from 5 to 8 years old, the family members highlighted the importance to educate their children, but most did not show any interest or availability to participate in a formation on the theme. In a way, we have a contradiction: while considering the formation important, family members had no interest or time to do it. Thus, being concerned is important, but not enough to mobilize other educational practices.

According to the family members between 5 to 8 years old, 85.2% of them used the cell phone to access the internet 2 to 4 times per week, for until 1 hour a day; and 83.3% watched television programs daily for up to 2 hours a day. Cell phone and television were used before sleeping and when arriving from school; television was also used after meals, and the cell phone, while waiting for something. Around 27.8% of families had television with internet access, which is generally used when children arrived from school, while waited for something, and before sleeping.

Though most used *smartphones* and children spent a longer time watching television, 75.9% of them used technologies to watch cartoons and series; 53.7% watch videos on *YouTube;* 44.4% *downloaded* internet games; 35.2% used technology to take photos; 33.3%, to draw or pain; and 31.5%, to research and make school tasks. Regarding games, around 22.2% play *offline* and 29.6%, *online*; 9.3% normally access social networks. *Notebook* (33.3%), *tablet* and *video games* (31.5%) are not much used by most children, but, when used, they use it more than 1 hour daily. And such use takes place mainly when they were waiting for something and when arriving from school.

Such data show that the moments in front of screens need to be problematized, mainly regarding the quality of contents, because they can involve the widening of childhood cultural repertoire, as well as incite the consumption of cultural industry. In this perspective, the child is

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seen more as a consumer of a market niche than as a subject with a right to culture – that, for example, watches quality programs appropriate for the potentialities of their development.

Besides this, the "waiting time", which normally is seen as "boredom" can be understood as a state of "transitory annoyance", because for Elpidorou (2018), boredom regulates and promotes well-being, favoring a healthy growth. Allowing children to experience this "waiting time" and teach them to deal with it in another way, which might contribute to relativize the moments of "empty time", as well as those filled by digital and non-digital artifacts.

Though these data refer to the specificity of a group of children between 5 and 8 years old, they endorse the data research of TIC Kids Online Brasil, held between 2017 and 2018 (Núcleo..., 2018, 2019), with children and teenagers from 9 to 17 years old who had a cell phone as the most used device to access the internet. According to this survey, the use of cell phones increased from 91% in 2016 to 93% in the years 2017 and 2018, followed by television, from 18% in 2016 to 25% in 2017, and reached 32% in 2018. The use of a desktop decreased: from 39% in 2016 to 32% in 2017, and reached 26% in 2018. The prevalence of the use of *smartphones* to access the internet is probably also related to school tasks and research, considering that the computer is normally an artifact, sometimes, more expensive than a *smartphone*.

Regarding *the mediating practices in the family context,* children stay at least two hours in front of the television, with or without in-person mediation, besides also having some moments alone, only with the mediation of electronic devices. When they have doubts on the use of screens they normally contact the mothers, even if they cannot (due to the lack of time and instruction, for example) help their children. Maybe this data can be relativized or problematized if we consider that the group of family members participating in the research was mostly composed by women.

In several European countries, children normally resort to parents to solve their doubts (Aroldi, 2017), but also seek to solve their "problems" through "trial and error". Thus, children attend their interests and needs from voice and image recognition, reach conclusions, develop abilities that are not without risks, and learn increasingly more to use technologies. In some cases, they were more informed than their parents (Chaudron, Gioia, & Gemo, 2018).

This aspect was also seen in our research, during the FoG, from the report of a mother of a 6-year-old child:

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> *[the child] feeds on technology. She gets up, goes to the TV. Snoops everything in my cell phone. Though she can't read yet, she uses the microphone, and seeks what she wants. Things I even didn't know existed. She knows they exist. It's quite funny* (I, FN, FoG, 2018)

The mother also reported the difficulty to "take a break" to be with her daughter:

> *at home, you have to multiply yourself in fifty others...Then, you can't take a break* [pause]. *You can take time of on the weekends, but during the daily routine, there's no way* [pause], *if you have chores or work 12 hours a day.* (I, FN, FoG, 2018)

Such testimonies show that the attribution of the mother in household chores and in children's education support a historic family configuration in which women's responsibilities increase as she works outside the house. They also point out that the mother also keesp the organization of the house and the education of children, while the father is responsible for financial matters (Itaboraí, 2015).

In these cases, it seems challenging to guarantee the practices and the "healthy habits" regarding children and screens, according to Tisseron's (2016) perspective, which defends the negotiated adult mediation grounded in postures of Self-regulation (definition of times and programs), Alternation (availability of other activities involving different senses and "all fingers" – not just the index, used in *touch*), and Follow-up (incentivize children to talk about what they saw).

A testimony from the FoG, on the experience with 9-year-old twin nephews, is closer to the senses of Self-regulation and Alternation proposed by Tisseron (2016):

> *each one has a* tablet. *But they are very orderly. Time to study is to study. . Time to watch TV is time to watch TV. Time of tablet is time of tablet. If they get a bad grade, they don't have it* [tablet]. (M, FN, FoG, October 22, 2018)

Accessing digital technology and having it as a mediator can bring innumerous elements to children's creative and imaginative process, but can also expose them to inappropriate content for their age. Therefore, "encouraging good practices- and mainly shared and/or creative practices – is effectively the best way to oppose those which favor isolation and social exclusion" (Tisseron, 2016, p. 123).

The posture of Follow-up was portrayed in the FG when a mother interviewed her 11 and 13-year-old sons to know what they wanted to do when they were *online*: "*access social networks,*

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YouTube, listen to music, Twitter, Spotify, I no longer use e-mails". Among their preferences, they cited: "*Music, games, and Facebook, to see the jokes*". Faced by that, the mother also revealed that the use of technologies was conditioned to the household tasks: "*We arrive home…set the table, cook….my brother makes the bed, and I do the dishes…we start using* [after] *we finish doing these things*" (A and E, interviewed by their mother, FN, FoG, November 23, 2017).

However, one year later, the postures changed, as reported by the mother: "*this year is much harder*". According to the mother, it was more difficult to "control" her sons' time using technology, because they both had cell phones and she said she could only be closer to them during meals or in places with no *Wi-Fi*. Even though she reported it was difficult to negotiate the changes, she incentivized her sons to notice that other activities could also bring pleasure: "*today we won't turn on anything. TV, computer, all off. It is much better to let them quiet, and they notice that during these moments"* (L, FN, GF, October 22, 2018).

Establish spaces to talk about what they access and consume when they are online, as well as on the use of other non-technological tools, allow parents and children to talk about the risks to which they are daily exposed, mainly when the mother is not at home. Even during teenage hood, when they prefer to be connected with nobody around, they stop considering 'normal' parental control on what they are accessing, at the same time they are chatting with strangers on the internet: "*they are talking with a guy I don't know. Because they have their group on WhatsApp, on Facebook. They say they don't know this boy in person, and I'm keeping an eye on him. Who is this boy?"* questions the mother (L, FN, GF, October 22, 2018), who continues the argument saying: "*We are being run over by technologies*". Apesar de sua rotina de trabalho, ela se faz presente na vida de seus filhos, que estão em um período de transição para a adolescência.

About this, the research *Young Children (0-8) and Digital Technology* (Chaudron, Di Gioia, & Gemo, 2018) highlights that teenage hood is the great marker on the forms of mediations, which should actively take place before the 8-9 years old, considering that, after that, peer influence is higher. And, as some family members see little risk on the use of technology for children, this makes them postpone the mediation to teenage hood, which is not indicated when educating them to use digital media (Chaudron, Gioia, & Gemo, 2018).

Because of this, it is important to guarantee an educational relation between family and school, explaining the many possibilities and possible risks of such practices. As affirmed by Rivoltella (2017), technologies do not always take up space in family relations, because, in many

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situations, this time did not exist even before them. Regarding digital technologies, the *mediating practices in school context* involve moments of resistance, lack of formation, and lack of interest solely as an instrumental use, which supports several studies (Belloni 2007; Pretto, 2017; Quartiero, Bonilla, & Fantin, 2015). There are also involved teachers, who research and learn with their students, reflect and produce about technology, beyond an instrumental perspective.

When we ask "how do you perceive the interlocution between families and school regarding the use of technological artifacts by children?", a ECE teacher affirmed that the topic "technology" is secondary, the most important topic to deal with the families are "the fights" and the relations of the children in the group: *"we still have other questions more problematic"*. On the possibility of having a formation on the theme: "*this theme for me is secondary, because, to me, I have to understand other things. The relations of teaching-learning are more important than the practical use of technologies*" (Teacher WG5, ECE, I, December 5, 2016). It is interesting to notice that, in this teacher's perspective, the process of development and learning would not be related to technologies, which shows even more the mismatch between school and contemporary life, in which media and technologies assume increasingly more protagonism, as stated by Fantin (2018). However, the same teacher mentions that she notices that some families use technology as a resource to calm the children on the way home and that the necessary mediation would be related to authority: "*The girl didn't want to leva, then the father played 'Galinha Pintadinha' in his cell phone for her to leave, because she didn't want to. See how negative this is, because it substitutes authority"* (Teacher WG5, ECE, I, December 5, 2016).

In the different narratives of family members and teachers, it is possible to notice that children are using technologies in different spaces. Considering such demand is a possibility to educate not only the child but also the family, as there are few spaces of formation and studies in the area. Besides this, it is important to highlight that the construction of knowledge and the learning processes permeate technology, thus talking about it is one more way to better know the children.

In this scenario, in which we did not perceive a great reflection of teachers on the importance of technology in the lives of children, it is key to highlight the emergence of an informed discussion about pre- and in-service teacher education. This fact has been problematized by researchers of different countries (Chaudron, 2015; Livingstone & Helsper,

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2008; Rivoltella, 2017), which shows that the position of teachers previously seen are not specific to our reality.

The teacher of WG6 mentioned that, when using their cameras and their cell phones, children answer with curiosity and bring elements of what they consume in their daily lives:

> *I have a camera and a cell phone. We take photos with the cell phone, and the children always ask what games I have on the cell phone. With time, they lose interest and know they can't handle it. The cartoons, television, and excitement are very present. Many characters are game characters. I have a student who does the movements and drawings related to the game. An example of an intense situation of children, who was afraid when it got darker (when a cloud passed) because he associated it with an event of the game Minecraft.* (Teacher WG6, ECE, I, November 29, 2016)

When asked about the interest to participate in a formation, she connects her positive experience in another context to the curiosity in knowing how to deal with the theme in the context of ECE: "*I think that…it can contribute in the sense of favoring a perspective of technology that can help children's learning process. I think that technology can be a support at the work with children"* (Teacher WG 6, ECE, I, November 29, 2016).

The teacher of the 1st year reports she normally uses television in the classroom for children to watch movies and uses the cell phone to research with them in the classroom. Besides this, she has the help of another teacher responsible for the computer lab to develop pedagogical games with the children:

> *Then, one thing I do in the classroom when they want to know the meaning of a word, they say "Let's go to Google". So I look at my cell phone. "Ah, so, teacher, everything is there". – "Yes, you can search everything. We can travel the whole world on the computer. You just type what you want". Then they say something and we research. I taught them to research at Google, who has the mothers' phone. But some have a cell phone and don't have internet. Then it's complicated too, you know?!* (Teacher, 1st year, ECE, I, December 2, 2016).

On several occasions, the teachers who already used technologies in the classroom were interested to participate in the formation on the use of technologies. And, in the moment of FoG, it was possible to bring other proposals of reflection and incite the questioning on who children are today and the role of educational institutions.

In such situations, it was common to hear: "*children just want technology", "only tablets", "they do nothing else", "they know much more than us"*. Then, by contextualizing or deconstructing such ideas, considering that children also learn by observing older or more experienced people, as

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well as with their peer, we also problematize the fact that the children who watch more television were those whose family members had the same profile, as stated by Tisseron (2016).

It was possible to see that the teachers who used technologies in different ways also incentivized families to mediate the use of artifacts for children. For example, the proposal of a ECE English teacher who told the tale *The lion and the mouse* for 6 year-old children and suggested, as an extra class activity, to watch the video and draw what they liked the most, besides building another end to the story with the help of the family. Children said that the version of the story told by the teacher was different from the one in the video, and then, with this proposal, the teacher praised the importance of *"checking information and sources. Thus, children could reflect about the different situations experienced by the lion and how its attitude and choice led to different results"* (FG, FN, 2018).

Even if we emphasize technology as culture, the case above shows that the dimension of resource can also incite the construction of narratives and the imagetic production, which contribute to the development of multiple childhood languages. Also, as the EE teacher highlights, "*it can be good when connected to the teaching-learning process, and harmful when connected to a social network or an excessive use"* (Teacher, 1st year – EE, I, December 02, 2016).

The question is not technology itself, but what we do with it, as argued by Fantin and Muller (2017). Thus, when responsible for the systematized socialization of historical, technological, scientific, and artistic knowledge, when using technologies as culture – and not only as a resource, school can enrich children's cultural capital, as "the most diverse the repertoire they receive from culture and with which they will play, the lower would tend to be the risk of cultural impoverishment, feared by so many authors" (Girardello, 2005, p. 5).

From this polyphony of voices of family members and teachers emerge many questions to think about the mediations between children and technologies. Particularly, a piece of news disseminated in the last years called our attention, being discussed even in academic events; from searches and publications in the media, it stood out how 'technology developers' of the Silicon Valley acted towards their young children.

To the general surprise, most 'digital gurus' not only restricted the access of their children to digital technologies[5], which many of us abuse, but also chose schools with no digital

[5] For more see: https://epocanegocios.globo.com/Tecnologia/noticia/2019/06/por-que-pais-do-vale-do-silicio-estao-restringindo-uso-de-celulares-e-tablets-pelos-filhos.html

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technologies or network access to their children of less than 12 years old[6]. The perplexity of knowing that the professionals who populate the world with new technologies, software, and applications restrict such artifacts to their children has raised several hypothesis due to the reason that make them do so, among which: the need of children to establish other interactions, more strongly supported by innovative methodologies than technological infrastructure, especially considering the quick obsolesce of the latter; the importance of seeking alternative schools, with proposals and curricula that scape uniformity, traditional didactic books, and digital appeal; and, finally, the possibility of having a space free of technologies in a world so full of them, so that children can 'detox' from certain uses during this time-space in school.

The fact is that, in one of the regions that most produce technologies in the world, the Silicon Valley, proliferate schools without *tablets* and computers for children, in which the use of cell phone is prohibited by contract[7]. In 2018, a law in France also forbade the use of technologies and internet connection in childhood schools in the country[8]. The repercussions of such choices and decisions are not trivial to those researching the theme, which still needs more systematized reflections.

Though the realities are much different, such questions refer not only to the conditions of class, culture, and social belonging – considering that these are children who have access to technology in other spaces besides school –, but also help us to think the possible risks of inadequate use of technology and the needed critical reflection about these types of mediation. Certainly, we cannot finish the discussion, but there are some interrogations and considerations to continue the study.

The challenges of formation: some remarks

In this article, it was possible to discuss theoretical and practical aspects of family and school mediations regarding the use of digital Technologies among children. In the investigative and formative space of this research, the proposals of reflections incited the questions about

[6] For more see: https://brasil.elpais.com/brasil/2016/07/12/tecnologia/1468352196_911950.html

[7] For more see: https://brasil.elpais.com/brasil/2019/03/20/actualidad/1553105010_527764.html

[8] For more see: https://g1.globo.com/educacao/noticia/2018/07/31/parlamento-frances-aprova-proibicao-dos-celulares-em-escolas-na-franca.ghtml

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who are children today, the conditions of childhood in digital culture, and the role of educational institutes and their mediations. We highlight the need to consider children's demands, their sensibilities, and concerns, to build the sense of belonging in different spaces of socialization, to have their rights respected, and to stimulate the discussion on the uses and consumption of technologies in school and outside it.

We observed that the personal interest of family members and teachers who seek a formation in the area is an important factor when dealing with education and quality that continuous education might have. When we discuss digital culture and the use of technologies among teachers, it is more than indispensable to have time to update educational practices. Certain mediating postures questioned in the moments of formation show that, in the singularity of this research, the socioeconomic condition and schooling were not determinant to the quality of mediations described by families and teachers.

In the perception of families, mediation in the use of technologies was often an attribution of school that, in turn, perceives it as something taught by families, in a vicious circle of delegation of responsibilities. Besides this, family members and teachers had doubts regarding the potentials and risks of digital technologies.

Different reports reveal concerns regarding the theme and some critical reflections faced by certain 'naturalizations' involving technologies. While some mothers tried to know what their children did with technologies, others, bothered with screen consumption, created alternative proposals to the digital, in the professional and family environment, and started to analyze their surroundings with another perspective. Such posture was identified during the FG, held one year after the formation, which supported the educational principle of 'research-formation'.

Still on the relation of family mediations, it is important to highlight that 'being present' does not only mean to be beside or to follow the children when using technology, as we have seen in the research. 'To be and to make yourself present' is to talk about what they are watching on the screens, it is to know that the children think about what they learn, be it in cartoons, in series, advertisements, or in games. It is to question, to explain, and also to propose other activities.

The use of technologies as a substitution to the 'lack of time' of the adult or as a justification for 'not knowing' or 'being tired', requires a problematization of several aspects regarding children – screen consumption, accessed or shared, interactions built or neglected.

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Thus, the use of digital technologies suggest mediations that can approximate or repel people, to broaden repertoires, and cultural experiences, or to reduce and limit spaces of belonging. Similarly, mediations can capacitate children or expose them to risks, restrict them, or make them create other references, other bonds. And, most importantly, they could promote reflections on significant and coherent practices, so as to contribute towards an education to citizenship.

The many functions of screens demands constant reflection about the practices, contents, contexts, and connections, to think about the quality of time in front the screens and beyond them. The allusion done by some authors to the metaphor of a 'media diet' with the 'use of balanced technologies' should be considered, because there is no 'one size fits all', and only 'blaming' parents, children, or teachers by not contemplating the real needs of families of schools is not coherent with the educational purpose, considering that it is a responsibility of all.

Regarding school mediation, we have observed that this process challenges teachers and school pedagogical staff to talk about the theme and seek expert information, with different scholars and specialists, so as to build a better understanding on the current dilemmas of educating children. In the singularity of this research, the level of school was not determinant, but the personal interest, and the perception of school demand, considering that, when there is involvement, it is possible to create other postures about the use of technologies. Besides this, we have seen that children's everyday lives are permeated by digital culture and that we need to think and act in this scenario.

Negotiating, controlling, prohibiting, denying, restricting, capacitating, and incentivizing are mediation practices in constant movement, in the family, in school, and in society. If there are no questions about our ways of educating, teaching, and learning in digital culture, if we do not consider the specificities of children, their full development, and their sociocultural context, if we do not discuss the role of families and their relation with school, if we do not problematize these and other questions in formation, we will contribute little to build transforming mediations.

About this, we should point out that, today, in the context of the Covid-19 pandemic, with all the complexity of situations we are living in the world in general, and in Brazil in particular, more than ever it is necessary to think about mediation on the use of technologies.

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With the sanitary and economic crisis triggered worldwide by this pandemic, some documents of the United Nations International Children's Emergency Fund (Unicef) and the United Nations Educational, Scientific and Cultural Organization (Unesco) have shown the many dimensions in which children have been targeted during social isolation, mainly children that, without school, are also without the basic conditions of food and hygiene, or to systems of remote learning, and thus their rights to protection and provision are under higher risks.

Scholars in childhood and digital culture have been participating, in several social spaces, of discussions about the uses of technologies in the context of the pandemic[9], and suggest that certain 'remote practices' have approximated children not only from school but also from their family members. Thus, the experiences with the use of digital artifacts and applications have oscillated greatly, according to the diversity of access, connection, and social and economic conditions in each family.

On one hand, we observe the demands of endless tasks– remotely, at a distance, and online– demanded by certain schools to the children, which require the presence of family members that do not always have the conditions, availability, or competence to such follow-up, causing then an enormous cognitive and emotional exhaustion. On the other, the sharing of experiences and suggestions of activities have guaranteed moments of learning and fruitful experiences among teachers, family members, and children from the different possibilities of using technologies and mobile devices.

These are certainly aspects that deserve studies with depth, but that, once more, refer to the conditions of access to digital culture, the quality of mediations, and the importance of reflecting the uses of technologies. After all, beyond the different motivation, forms of entertainment, and resources, the responsible use of digital technologies nowadays are a condition of citizenship.

[9] Live *Educação e tecnologias digitais em tempos de pandemia: práticas culturais e mediações possíveis* (Education and digital Technologies in pandemic times:cultural practices and possible mediations). See https://www.facebook.com/watch/live/?v=2833132530089533&ref=watch_permalink

Infância e tecnologia em tempos de pandemia. (Childhood and technology during pandemic times) See https://alana.org.br/infancia-e-tecnologia-em-tempos-de-pandemia/ *Pais e educadores discutem estratégia de ensino infantil em casa* (Parents and educators discuss strategies of childhood education at home) See https://agenciabrasil.ebc.com.br/educacao/noticia/2020-04/pais-e-educadores-discutem-estrategia-de-ensino-infantil-em-casa

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There are many challenges, but, at the same time, these are stimuli to continue the reflection and contribute to a more informed debate on the theme, so that the professionals of education will be increasingly more informed not only to approach questions on the use of technologies and their mediations, but also how to practice them. Thus, besides the health professional, who also have been studying about the theme, it is important for teachers and researchers in the field of education to be increasingly more prepared and legitimized to contribute to the debate, in a multidisciplinary perspective, so as to dialogue with their peers, their families, the children, and society in general.

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