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Technology use habits of children under six years of age at home

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Abstract

Parents, teachers and researchers are wondering how the digital and technological world affects young children between 0 and 6 years of age at home. This study aims to show the use they make of it, the characteristics of this use, and the relationship that children establish with technologies, as well as to find out whether there are rules for this use and who sets them.

A mixed quantitative-qualitative methodology, using the “questionnaire on the use of technology at home”, semi-structured interviews, and analyses of Early Childhood Education Assemblies (ECEA), generated very significant results. For instance, despite the quick incorporation of tablets or video game consoles, TV is still the favorite device of the youngest population, followed closely by mobile phones. The results indicate that these children spend an average of 92 minutes per day watching TV. In addition, 92% of them have a tablet and spend an average of 60 minutes per day using a computer or a tablet. It can be concluded that children start accessing and using ICT at the age of two.

Keywords: ICT. Early childhood education. Family habits. Influence of technology.

1 Introduction

We live in a society in which technological advances seem to have no end; they occur so quickly that we barely have time to appreciate their contributions. We accept that they improve the capabilities of previous advances and they become part of our wide digital repertoire, without questioning many of their aspects.

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This situation raises concern among some groups. Parents, teachers and researchers have many questions, and they are trying to know how the digital and technological world around us affects the youngest population.

2 Family and technology

The child's learning, according to Piaget (1976), is subordinated to the changes that occur through interactions with their environment, assimilating new information and accommodating it to reality. Understanding a thing is a consequence of discovering it for oneself. Vygotsky (1977) points out that the development of this occurs through the social exchange of intentions, beliefs, needs. It is the life in society that allows private experience, so that the development of thought consists in the autonomous control of cultural artifacts. In the digital society, these theories lead us to establish a connection between technologies and socialization at an early age. Cultural signs and symbols are internalized resources and the management of these cultural artifacts belonging to the social group to which they belong is generated through interaction with people who have a greater command of them -family, brothers, peers, etc.- (COSTA, SILVEIRA, 2018).

Concerned about the vulnerability of children in the presence of so much technology, research has been carried out to determine at what point this issue should be tackled. First of all, experts do not know for sure at what age children should start using technology, although this is believed to be at 4 years old, since most studies show that from that specific age children begin to increase their use of ICT (WARTELLA et al., 2002); however, there are no findings that could give us an answer.

The report performed by the European Commission in 2015, called "Young Children (0-8) and digital technology: A qualitative exploratory study across seven countries", shows a very important situation that must be considered: families tend to use technology individually to work (desktop computers and laptops) and to communicate (smartphones). The children of such families use technology mainly for entertainment (TV, tablets, smartphones, non-portable or handheld video game consoles, desktop computers and laptops), and they prefer tablets, because of their ease of use, followed by smartphones, for their multifunctionality and the sense of autonomy they provide (CHAUDRON, 2015).

Through the concept of appropriation of means, Theunert (1996) and Schorb (2009) point out the active capacity of the subject and the mediatic action as a part of the social act. A bidirectional relationship between subject and technology. Technology becomes a factor of socialization. In this sense, media are not only

intermediaries, carriers or vehicles within the processes of socialization, but are also the object of socialization processes.

Likewise, Marsh et al. (2005) and McPake, Stephen et al. (2008) observed that parents, older siblings, friends and relatives play an essential mediating role that allows young children to have access to technology, and that the role of parents offers technological opportunities. A gap between incidence and availability has also been identified (MCCARRICK, LI, 2007; O'HARA, 2011). On the other hand, Lepicnik and Samec (2013) carried out a study with 4-year-old children in Slovenia; they observed that most of them live in a technological environment enriched with a wide variety of multimedia objects, and that their families support learning with ICT. It is obvious that many of the children now attending pre-school and the early years of primary education have grown up in homes where multimedia, multi-modal forms of expression are common and their experiences of using digital technologies for communicative and recreative purposes can be extensive (MCPAKE et al. 2013).

The main goal of this work is to know the use that young children (0 to 6 years of age) make of technology at home, i.e. to determine the characteristics of this use, the relationship that the child establishes with technology (BERGER, 2008; BREDEKAMP, 2011; FOLLARI, 2010), whether there are rules for it, who sets these rules and how the child perceives them. The study is aimed to give an answer to the following questions:

- a) What devices do children under 6 years of age use the most at home? (Obj.1)
- b) Where, with whom and for how long do children use these devices? (Obj.2)
- c) What is the opinion of parents on the use that their children make of these devices? (Obj.3)
- d) What do children think about technology and why do they use it? (Obj.4)
- e) What rules govern the use of technology? (Obj.5)

3 Material and Methods

The study was based on a mixed methodology, using quantitative and qualitative instruments. A questionnaire was designed for the parents, from which the most relevant data were extracted to create an interview protocol with the aim of finding reasons that explained the data. Moreover, the opinion of the children

themselves was incorporated through the record of the Assemblies held in early childhood classrooms.

3.1 Participants

The study sample was divided into two large groups of informers: parents and children.

For the parent group, the sampling was intentional, i.e. it required the voluntary collaboration of parents with children aged between 0 and 6 years old.

A total of 512 parents filled in the questionnaire, of which 76.2% were women and 23.8% were men. The age range of the parents was between 22 and 51 years, with a predominance of those who were 40 (14.8%), 37 (9.4%) and 38 years old (8.2%). The ages with the lowest percentage in the total sample were 24, 28, 47 and 51 years old (0.4%). With respect to nationality, 96.1% ($f=492$) were Spanish. Likewise, there were very few individuals from other countries: Venezuela ($f=4$), Germany ($f=4$), Mexico and Peru ($f=4$).

With regard to children, 54.3% of the parents who participated in this study had two children, and 30.9% had one child. The parents with three and four children showed lower frequency and percentage ($f=72$, 14.1% and $f=4$, 0.8%, respectively).

The residential areas were distinguished between “urban” (93.4%, $f=478$) and “rural” (6.3%, $f=32$), respectively.

One of the questions of the questionnaire was aimed to gather information about whether the parents of these children use a computer and, more specifically, where.

Table 1. Results for the Item “You use the computer at:”

Place where the computer is used		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Work	58	11.3	11.4	11.4
	Home	104	20.3	20.4	31.8
	Both places	328	64.1	64.3	96.1
	None	20	3.9	3.9	100.0
	Total	510	99.6	100.0	
Lost	System	2	.4		
Total		512	100.0		

Source: Own elaboration (2018).

The option with the highest values was “both places (work + home)” (64.1%), followed by “home” (20.3%). Additionally, the authors wanted to delve into this question by asking also how frequently they used the computer, to which the most common answer was “everyday” ($f=336$, 65.6%), followed by “several days a week” ($f=88$, 17.2%); only 3.1% of the parents said that they “never” use the computer.

With the aim of going into more depth in certain aspects after obtaining the results of the questionnaire, the most frequent parent profile among the participants was determined, and their collaboration was requested once again to conduct interviews.

There were a total of 10 interviewees, of which 6 were women and 4 were men, whose ages ranged between 38 and 43 years old; 60% had two children and 40% had only one, and 80% lived in urban areas and 20% in rural areas.

Moreover, in order to know the opinion of the other sector of informers, i.e. the children, a total of 50 students from early childhood education, between 4 and 5 years of age, were selected, of whom 30 were boys and 20 were girls. Of the total, 25 belonged to a public educational centre located in a town of the province of Seville, and the other 25 belonged to a public educational centre located in the city of Seville. The predominant socio-economic status in both groups was middle/high.

3.2 Procedure and Data Collection

The questionnaire of the present study, called “Questionnaire on the use of Technology at home”, was anonymously administered to the parents and it consisted of a total of 35 items, which were divided into 4 major category blocks: Details of the parent, Details of the Child, Use of technology at home and Use of technology at the early childhood education centre (0-6 years of age). The categories of the questionnaire resulted from the review of previous studies. Once the first version of the questionnaire was created, it was reviewed by a group of 10 expert teachers specialized in the fields of early childhood education and technological education, who proposed modifications for some concepts, times and suggestions of technologies, which were incorporated. The Cronbach’s alpha for internal consistency was applied obtaining the following result: 0.981. The value that was so close to 1 led to consider the various reliability indices to be quite acceptable, since correlations between 0.8 and 1 are “very strong” and, as a consequence, they indicate high levels of reliability for the different instruments created.

With respect to interviews, a semi-structured design was selected (VARGAS, 2012), which, supported by a previously established script, gave the participants the possibility to express themselves openly. The design of the script was based on the results of the questionnaire, with questions that would allow to delve into and explain what was considered most relevant. Thus, the parents were asked what they thought the purpose of their children was when using ICT, whether they used them frequently at home, and whether they were all accessible for the young ones

In order to know the ideas and perceptions of early childhood students, two assemblies were held (Figure 1). Assemblies are a very common activity in Spanish nursery schools, in which boys and girls share a moment of dialogue to talk about different topics, generally with the guide of the teacher. This way, a script was made with questions that were generated from an object shown: tablet, mobile phone, computer and TV. The assemblies were conducted by the tutors of the class, who had previously met with the authors to involve them in the objectives of the study, and they were consulted about the possible questions to obtain information. The recordings of the assemblies and the notes taken during these allowed to gather all the information for later analysis.

3.3 Data Analysis

The quantitative data obtained through the questionnaire were statistically analysed using the software SPSS v24.



Source: Own elaboration (2018).

Figure 1. Assembly with early childhood students.

Table 2. Analysis techniques used and objectives assigned

Objectives	Statistical test/comparison used
Global analysis of the results. Description of the answers of the parents in the different items formulated	Frequencies, percentages, means and standard deviations
Reliability of the different items of the questionnaire	Coefficient of internal consistency (Cronbach's alpha) Coefficient of correlation: item-instrument's total
Existence of differences between different variables of the categories studied	Wilcoxon W test and Mann-Whitney U test

Source: Own elaboration (2018).

To analyse the qualitative data, a system of categories was created following an inductive procedure (Osses, Sánchez & Ibáñez, 2006); thereby, the categories were established according to the data obtained. This way, the information was grouped in the different categories created and the coding of the three authors was contrasted, first individually and then jointly, until an agreement was reached in the cases where discrepancy was found (< 4% of cases), reaching 100% agreement. In order to facilitate the process of coding and obtaining results, the authors used the qualitative analysis software Weft QDA.

4 Results

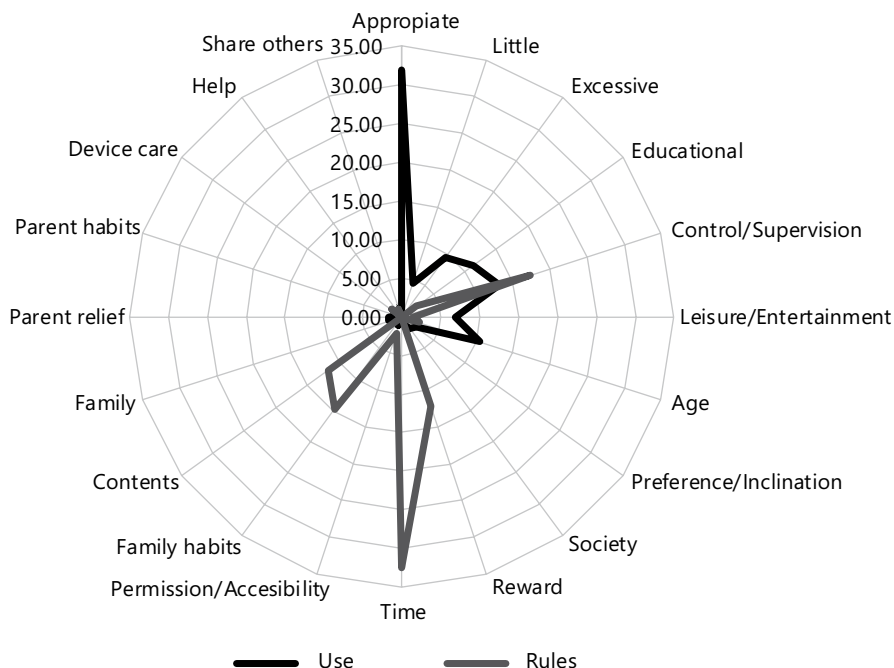
The results show the answers to the different questions asked in the study obtained from any of the instruments used (Questionnaire, Interview and Assembly).

A first approach to the qualitative data show that the 1,389 comments generated can be easily grouped into two main topics: the use of ICT by young children, and the rules that parents establish for it. Figure 2 shows how those 1,389 comments are distributed according to the established categories.

It can be observed that the category with the largest number of comments was Appropriate, followed by Control/supervision and Time.

Regarding Appropriate, all the references made were related to the USE of technology.

“At that age, I think her use is appropriate. It is infrequent and mostly for making puzzles or watching children’s movies”. Appropriate-Questionnaire.txt [1992-2278]



Source: Own elaboration (2018).

Figure 2. Distribution of categories related to the USE of technology and the RULES for this use.

The opposite happened in the category related to TIME, as all the comments were related to the RULES of technology use.

However, in Control/Supervision, the comments were referred to either the USE (48.8%) or the RULES of use (51.1%).

“The child can learn while having fun, which is why one must control when they use it”. Control-Questionnaire. txt [18281-18415]

Other categories mentioned were Educational, followed by Age, Family Habits and Reward. The categories Educational, Age and Reward were used to refer to both the Use and the Rules of use. The category Family Habits only referred to the Rules of use. Here are some examples:

“There are educational games which, with a reasonable and appropriate use, can foster their learning”. Educational-Questionnaire.txt [2159-2278]

With regard to the USE that children under 6 years of age make of technology, which devices are most used by them at home, where they use them and in the company of whom (Obj.1, Obj.2, Obj.3, Obj.4), the categories related to USE, determined in the analysis of the qualitative data, indicate that the category with the highest percentage of references is the one related to the Appropriate USE of technology according to the age of children.

Comment of the father of a two-year-old boy:

“Appropriate for his age, he uses the tablet to draw, etc.” Appropriate-Age-Questionnaire.txt [3315-3412]

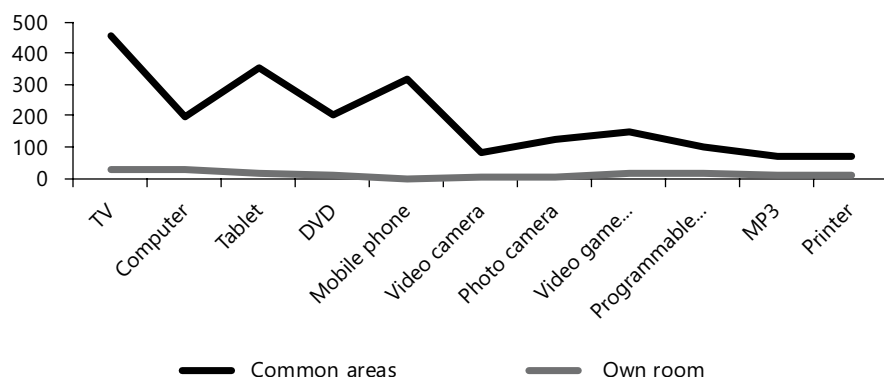
With respect to which are the ICT tools used by children, the parents indicated that they USE the ones listed in Table 3, which also shows the percentage and frequency of parents that answered “yes” for the use of each of them.

Table 3 shows how, despite the quick incorporation of tablets and video game consoles, TV is still the favorite ICT tool par excellence for young children compared to the rest (f=358, 69.9%), followed closely by mobile phones (f=312, 60.9%). All this can be illustrated with the following comments:

Table 3. Distribution of frequency and percentages of usage of the different ICT tools

They use the following ICT tools:	Frequency	Percentages
TV	484	94.50%
Computer	30	36.70%
Tablet	358	69.90%
DVD	188	36.70%
Mobile phone	312	60.90%
Video camera	48	9%
Photo camera	100	19.50%
Video game console	138	27%
Programmable games	90	17.60%
MP3	34	6.60%
Printer	48	9.40%

Source: Own elaboration (2018).



Source: Own elaboration (2018).

Figure 3. Frequency of use of “free access” or “restricted access” technologies.

“I think that my child doesn’t make an excessive use of the mobile phone, but that’s because I don’t allow her. Other than that, I have no problem; she’d rather play than watch TV or anything else”. Preference-Questionnaire.txt [1169-1378]

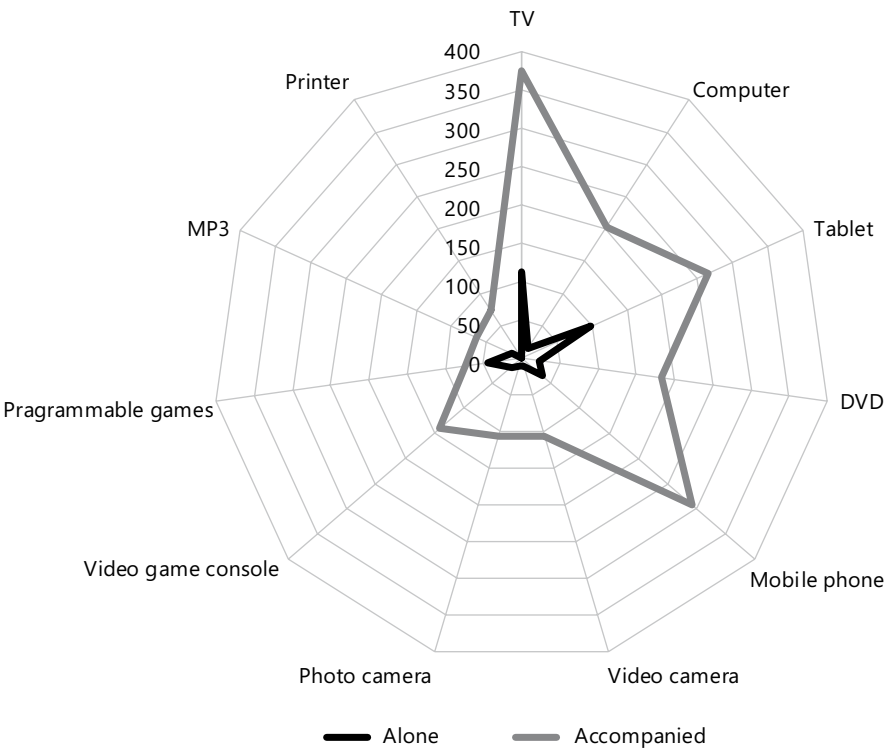
The information gathered in the assemblies is in line with these data, since all the children said that in their house they had TV, computers and tablets. Regarding the latter, it is important to highlight that 92% had a tablet for themselves, and in almost 50% of cases there was a tablet for each member of the family.

“There are four tablets in my house: one for daddy, one for mom, one for my brother and one for me” (Child 3. Assembly CEIP 1)

Of the technological tools proposed (Figure 3), the results show that TV ($f=352$, 68.8%) and mobile phones ($f=310$, 60.5%) obtained the highest frequency with regard to the variable “restricted access”. However, the individuals surveyed highlighted that they make very little restricted use of tools like programmable games ($f=78$, 15.2%), or MP3 players ($f=82$, 16%).

At the assemblies, the children made numerous references to this restricted access, especially regarding the use they may make of the mobile phone, as shown by comments like the following one:

“I can use the tablet only to play games. I could use the mobile phone before, but now my mother has installed an application so I can’t go through her videos and stuff” (Student 22. Assembly CEIP 2).

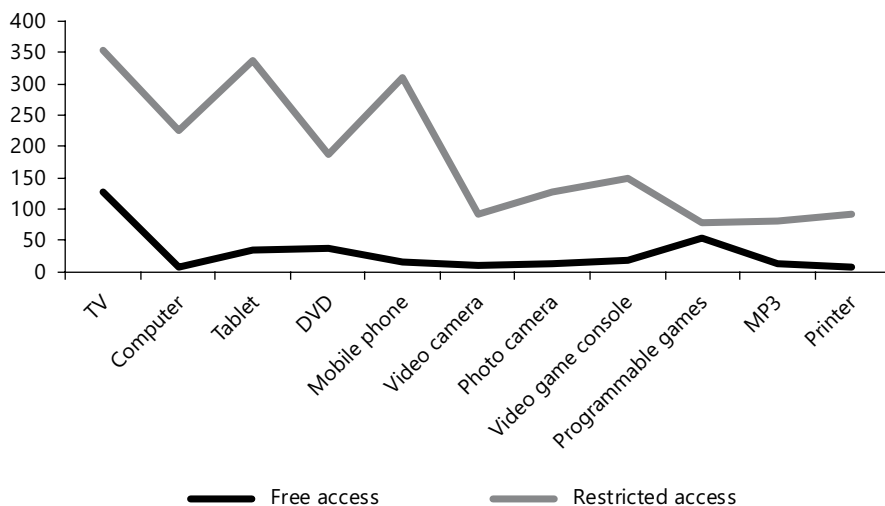


Source: Own elaboration (2018).
Figure 4. Frequency of use of technologies “alone” or “accompanied”

As can be observed (Figure 4), and taking into account that parents state that their children make a greater use of TV, mobile phones or tablets, the results show that these technologies are also used largely in the company of other members of the family. TV was the most voted ($f=374$, 75%), followed by the mobile phone ($f=292$, 57%) and the tablet ($f=266$, 52%).

The results show how children use TV alone ($f=112$, 21.9%) with values that are very similar to those of the use they make of the tablet, also alone, ($f=98$, 19.1%). Here are the comments of two mothers, one of a 3-year-old boy and the other of a 4-year-old girl:

“The child uses the mobile phone for a little bit and under supervision, and not at any time; only at noon or in the afternoon”. [1166-1320]



Source: Own elaboration (2018).

Figure 5. Frequency of use of technologies in “common areas” or in their “own room”

At the assemblies, the children made various comments related to who accompany them or not while they use ICT. Among these, it is highlighted that 80% stated that they use the tablet alone. This datum may be related to the previous one about restricted access: the parents set up the tablet in a way that their children can only access certain applications so that they can use it without supervision.

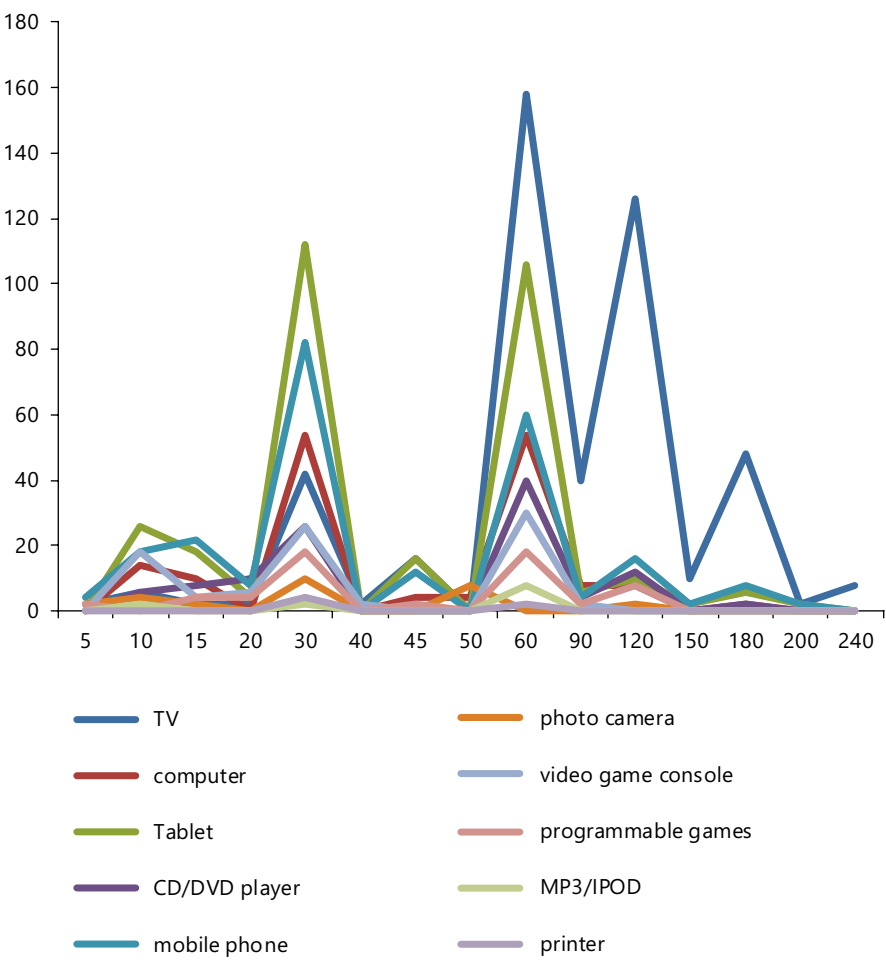
Another question that served to answer the first research objective was the one aimed to know the location of the technologies that the children claimed to use, indicating whether these were in a “common area” or in their “own room” (Figure 5).

With respect to the technological tools that are in common areas of the house according to the parents, the most voted ones were the TV (88.7%), the tablet (69.1%) and the mobile phone (61.7%). The results also show that the technological tools that obtained the lowest frequency in the common areas were the MP3 player and the printer, both with 13.7%.

On the other hand, when the parents were asked about which technological tools their children are allowed to use in their own rooms, the most voted ones were the TV ($f=30$), the computer ($f=28$) and the tablet ($f=16$), although it must be taken into account that these results are parallel to those shown in the previous

table and, therefore, such technologies are more likely to be in a common area of the house rather than in the child’s room.

With regard to the computer, the results obtained (Figure 6) show that the time (minutes) per day that the parents think their children spend using it is an average of 47.91 minutes, although the highest frequencies correspond to 60 minutes (f=54, 10.5%) and 30 minutes (f=54, 10.5%).



Source: Own elaboration (2018).
Figure 6. Frequency understood as the number of parents who respond (vertical axis) and time spent using technology measured in minutes (horizontal axis)

Another technological tool that obtained high frequency regarding the use that children make of it was the tablet. The results obtained about the time (minutes) per day that the parents think their children spend using it is an average of 47.31 minutes, although the highest frequencies correspond to 30 minutes (f=112, 21.9%) and 60 minutes (f=106, 20.7%).

The results obtained regarding the mobile phone show that the parents think that their children use it 49.20 minutes per day in average, although the highest frequencies correspond to 30 minutes (f=16, 82%) and 60 minutes (f=60, 11.7%).

In the assemblies, there was great difficulty to detect data related to the perception of time, due to the age of the children. Thus, at the beginning of the dialogue, the children said that they spent a lot of time, but when the teacher asked them to describe an afternoon or a normal day indicating the activities they did, it was observed that the time they spent using the different technologies was actually not as long as they initially said.

To conclude this section on “the USE”, by relating the different categories it was found that there are some relationships among them. This has been calculated counting the number of comments that have been categorized into two of the categories listed in Table 4.

Table 4. Relationships between categories related to the USE of technology

	Moderate	Appropriate	Excess	They don't use them	Little
Parent relief	0	0	10	0	0
Controlled	0	56	63	0	18
Age	0	164	22	0	21
Educational	0	90	15	0	0
Leisure/entertainment	0	0	0	0	0
Preference/inclination	0	6	0	0	9
Reward	0	0	0	0	0
Accessibility	0	0	0	0	0
Parent habits	0	0	0	0	0
Family	0	0	0	0	0
Society	0	0	0	0	0
Asks for help	0	0	0	0	0

Source: Own elaboration (2018).

Significant relationships were found between some of the categories used to gather the comments related to the USE of technology. The most representative relationship established was the one between the categories Appropriate and Age. This means that, somehow, the rules and criteria of use are determined by the age of the child. The following comments show the opinions of the parents:

“Appropriate for his age” Appropriate-Age-Questionnaire.txt [2537-2608]

They also consider the *Educational* use of technology, as shown by the following comments:

“I think it’s good. My child uses it to watch videos of educational children’s songs”. Appropriate-Educaional-Questionnaire.txt [11248-11348]

Once the results to answer the first four questions were described, the next step is to present the answers obtained for the fifth and last question. The items for this correspond to the RULES that govern the use of technology (Obj.5). As with the categories of USE, relationships were established among the different categories to verify their significance and attempt to explain where those RULES are targeted. All the parents, in some way, mentioned the rules they have at home for the use of technology. After synthesizing this information, it was observed, as shown in Table 5, that parents have rules strongly related to the Family habits and, depending on these, they relate to Time, Contents, Control and Reward. As in

Table 5. Relationships between categories related to the RULES of use established by the parents

	Time	Family habits	Control	Permission	Contents	Reward	Leisure	Educational	Age
Time	296,76	70,67	43,86	5,80	53,49	37,85	0,00	15,26	5,68
Family habits	70,67	177,15	9,51	2,48	34,68	20,67	9,66	6,07	5,68
Control	43,86	9,51	121,62	0,00	9,48	3,02	8,77	0,00	7,90
Permission	5,80	2,48	0,00	23,49	3,68	0,00	0,00	0,00	0,00
Contents	53,49	34,68	9,48	3,68	136,70	27,58	3,38	2,63	7,81
Reward	37,85	20,67	3,02	0,00	27,58	99,21	0,00	0,00	0,00
Leisure	0,00	9,66	8,77	0,00	3,38	0,00	15,17	0,00	0,00
Educational	15,26	6,07	0,00	0,00	2,63	0,00	0,00	21,81	0,00
Age	5,68	5,68	7,60	0,00	7,81	0,00	0,00	0,00	23,19

Source: Own elaboration (2018).

the previous case, the data collected in Table 5 refer to the number of comments that have been categorized into two of the categories that appear.

It is worth mentioning that 23% of the parents made no comments about the rules of use of technology, and that seems worrisome or thoughtless.

It can be said that the Family habits related to Time of use normally correspond to the establishment of some rules related to daily activities carried out at home, which are characteristic habits of each family, as shown by some comments:

“We only use the mobile phone to watch videos of relatives (one video before the after-lunch nap) and the tablet to see educational contents on Saturday and Sunday mornings”. Time-Family Habits-Questionnaire.txt [2402-2605]

Another significant relationship was found between Contents and Time. As can be observed, these rules are focused on the time estimated by the parents as appropriate for the use of a technology, as well as the contents that they think their children can have access to. Here are the comments of some parents of 2-year-old children:

“Restricted time and restricted contents”. Contents-Time-Questionnaire.txt [3331-3405]. And some comments of parents of 5-year-old children:

“He has several video games in the father’s iPad and he takes it sometimes for a limited time”. Contents-Time-Questionnaire.txt [7389-7442]

In the assemblies, the children stated the existence of rules for the use of ICT, which is highly consistent with the previous comments and the relationships established between the different categories. However, even though in most cases the children mentioned the existence of a limitation in the time of use, there were cases in which this time limitation did not exist and the child stated that he/she spends all the time he/she wants watching TV or using the tablet:

“I watch TV when I eat and then I go to my room to watch more until I have enough. This only happens with mom; when I’m with dad I only watch TV when he lets me” (Child 9. Assembly CEIP 1)

With regard to the contents, the children commented that they use the tablet mainly to watch cartoons and to play, the TV only to watch cartoons or movies and the mobile phone to play, call and take pictures.

“I use the tablet to watch YouTube a little bit after lunch” (Child 32. Assembly CEIP 2)

Lastly, most of the children interviewed in the assemblies did not mention the use of ICT as a reward for good behaviour or eating properly, which is odd and contradicts the information gathered from the parents.

5 Discussion

Although there is still no consensus on the age at which children should start using technology, the present study shows that many children begin to have access to and use it at the age of 2 years, which is demonstrated by the examples of comments presented in the results section. These findings support the idea that children begin to increase their use of ICT at an increasingly earlier age (WARTELLA et al., 2002). The present study shows that most children use TV more than tablets and mobile phones, contrasting the INTEF-2016 report, which stated that children prefer tablets and smart phones. The difference in these data may be due to the fact that the sample of the present study had a large percentage of parents of 2-year-old children (28.1%) (O'HARA, 2011).

Technology is part of our everyday life and, therefore, of the everyday life of our children, as shown by the results obtained: in 50% of cases, the children stated that there is one tablet at home for each member of the family.

Piaget and Vygotsky theories about children's learning, Theunert (1996) and Schorb (2009) theories about the appropriation of media, and others such as Pettit (2009), Süß, Lampert & Wijnen (2010) about technology as a socializing element of childhood together with family, classmates, school, etc., show us, along with the data obtained in the study, that the technologies present in homes are influential devices in the process of child socialization. The technologies allow the construction of the social worlds of the child and promote and affect the behavior of them.

It can be confirmed that the access to these devices is restricted and highly controlled, especially for the TV and the mobile phone. This opinion was also expressed by the children themselves when they were asked to talk about it in the assemblies, although the authors considered it necessary to delve into the “good practices” of the parents concerning restrictions and control, since many of them, including the teachers themselves, admitted to know very little about parental control applications; the authors also considered it important to go into more depth about establishing clear patterns and rules for the use of ICT. It was

also possible to verify that the use that the children make of these devices is always “in the company” of another person. However, interestingly, the children commented in the assemblies that they used the tablet alone, to which the authors add that being accompanied does not necessarily mean that a good control on the access to technology is being implemented.

It can also be stated that the use of ICT devices occurs in a place where the children can be controlled (common areas), although it must be highlighted that a small percentage of the children interviewed have a TV and a computer in their own room. Regarding the time of use, most of the devices proposed in the present study are used for about one hour; in some cases, like the TV, this time is overpassed, and it can be up to two or three hours per day.

6 Conclusion and implications

In general, it can be concluded that, according to the parents’ opinions, the use that their children do of ICT is appropriate for their age. This use is strongly related to the control that the parents establish about the time of use and particular family habits. It can be confirmed that digital devices are quickly becoming the tools of culture at home (NAEYC 2012, p. 2). Thus, family habits (customs and culture) make a difference in the involvement of children with ICT (MARSH et al., 2005; MCPAKE et al., 2005; PINEDA, CHIAPPE, 2018). As has been seen in the present study, children learn by observing other members of the family (older siblings, parents, grandparents or any other adult) (BROOKER, 2002; TOMANOVIĆ, 2004). Likewise, the children also said that they have rules for the use of technology similar to those expressed by the parents, and these are related to time and control.

The findings of the study show that the socialization of children under 6 is increasingly influenced by the existing home media and, therefore, it can be said that technologies are mediating factors of child socialization in our study context, as pointed out by the Piaget (1976), Vygotsky (1977), Theunert (1996), Schorb (2009), Pettit (2009) and Süss, Lampert & Wijnen, (2010) theories.

It was possible to verify that the parents use ICT devices as rewards for completing tasks and for good behaviour. This leads to think about the leisure and entertainment that these technologies pose for children, becoming an incentive for them to perform their daily activities and responsibilities. Moreover, some parents acknowledged that ICT devices have educational value. They believe that children learn while playing and having fun. However, the same opinion

was not found among the children interviewed, since they did not mention the use of ICT as a reward for their good behaviour.

The authors wanted to overcome the difficulties that other studies had at finding out the opinions and attitudes of children toward technology, by holding assemblies, which is a strategy that helps children to express themselves in a calm environment. The authors believe that with this information-gathering instrument, it was possible to compare the opinions and perceptions of parents and children, which sometimes coincided, and others did not. At this range of age, at which they still do not know how to express themselves and how they feel (what they like and dislike) (PLOWMAN, STEPHEN, 2003; STEPHEN et al. 2008), it was important to find the way to obtain the opinions and perceptions of the children to compare it with those of the parents.

The authors believe that it is important to delve into these different opinions/perceptions between parents and children to find out which elements are responsible for this difference. It would also be necessary to carry out a more thorough study on the rules of use to specify whether they are appropriate for a correct use of ICT devices and determine the knowledge of ICT with which children arrive at nurseries and how they get it, in order to work for the appropriate use of ICT in which there is a link between the Family and the School (CLARKE, 2006).

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8 Statements on open data, ethics, and conflicts of interest

We have not followed any specific ethics guide for doing research, but general ethical principles of research in the social and behavioural sciences. Participation was voluntary and families were informed about the nature of the study, and assured of confidentiality of the information.

Participants were not required to reveal their identities. Permissions to conduct the questionnaires were obtained from the heads of schools, and from the participating families.

We confirm the absence of any conflict of interest.

Avaliação de hábitos domésticos de crianças menores de seis anos quanto ao uso de tecnologia

Resumo

Pais, professores e pesquisadores se preocupam em como o mundo digital e tecnológico afeta crianças entre 0 e 6 anos de idade em casa. O objetivo deste estudo é mostrar o uso que as crianças fazem da tecnologia, as características de seu uso e a relação que elas estabelecem com estas, assim como descobrir se há regras para esse uso e quem as determina. Foi usada uma metodologia quantitativa-qualitativa com aplicação de questionários sobre o uso de tecnologia em casa, entrevistas semiestruturadas e análise do Early Childhood Education Assemblies (ECEA), os quais reproduzem resultados significantes. Por exemplo: apesar da rápida incorporação de tablets e videogames, a televisão é ainda o instrumento favorito da população infantil, seguida de perto por telefones celulares. Resultados indicam que as crianças gastam, em média, 92 minutos por dia vendo TV. Além disso, 92% deles têm um tablet, e gastam, em média, 60 minutos por dia usando computador ou tablet. Pode-se concluir que, aos dois anos, as crianças começam a usar tecnologias da informação e comunicação.

Palavras chave: Tecnologias da Informação e Comunicação. Educação na primeira infância. Hábitos familiares. Influência da tecnologia.

Hábitos de uso de la tecnología de los niños menores de seis años en el hogar

Resumen

Padres, profesores e investigadores se preguntan cómo afecta el mundo digital y tecnológico a los niños de 0 a 6 años en casa. Este estudio pretende mostrar el uso que hacen de las tecnologías los menores, las características de este uso y la relación que el menor establece con este mundo, así como averiguar si existen reglas para su uso y quién las establece. Una metodología mixta cuantitativo-cualitativa, utilizando el “cuestionario sobre el uso de la tecnología en el hogar”, entrevistas semiestructuradas y análisis de las Asambleas de Educación de la Primera Infancia (ECEA), generó resultados muy significativos. Por ejemplo, a pesar de la rápida incorporación de tabletas o consolas de videojuegos, la televisión sigue siendo el dispositivo favorito de la población más joven, seguida de cerca por los teléfonos móviles. Los resultados indican que estos menores pasan una media de 92 minutos al día viendo la televisión. Además, el 92% de ellos tienen una tableta y pasan un promedio de 60 minutos al día usando una computadora o una tableta. Puede concluirse que los niños comienzan a acceder a las TIC y a utilizarlas a la edad de dos años.

Palabras claves: Tecnologías de la Información y la Comunicación. Educación Infantil. Hábitos familiares. Influencia de las TIC.

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