DIGITAL LITERACY, TECHNOLOGY AND SOCIAL INCLUSION

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MAKING SENSE OF ONE-TO-ONE COMPUTER PROGRAMMES AROUND THE WORLD

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DIGITAL LITERACY, TECHNOLOGY AND SOCIAL INCLUSION
Making sense of one-to-one computer programmes around the world

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11. CHILDREN'S PRACTICES OF ICT AND SOCIAL INEQUALITIES: ON THE USES OF THE MAGALHÃES COMPUTER IN TWO SCHOOL COMMUNITIES

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ABSTRACT

This paper addresses the Portuguese government measure that introduced a laptop - the Magalhães computer – in primary education as an attempt to extend the social base of the use of ICT. It tries to give an account of family adhesion to this computer, of some of its uses by children in different contexts, and of the question of inequality in opportunities and uses of ICT.

It was based on two studies conducted in schools from two towns in different Portuguese regions. Their methodological design took a longitudinal stance and included a quantitative strand through a survey with teachers, parents and children, as well as a qualitative strand through interviews with teachers and parents and the ethnography of a class in each setting.

Data revealed: a) a strong adhesion to the Magalhães; b) its regular use by children (mainly at home, secondly, at school, and, thirdly, in other contexts), predominantly under their own initiative; c) the existence of a greater proportion of other computers at home by families with higher academic qualification; d) a more frequent and widespread use of the Magalhães at home by children of parents with higher academic qualification; e) a significantly uneven family support, which is stronger in socially advantaged groups; and f) less imposing rules on the use of the Magalhães at home by families with lower academic qualification.

Data suggest a double trend: a) a widespread acquisition of the Magalhães; and b) a selective use of the computer by the different social groups, accompanied by family mediation that is also selective. This means that, although the first political goal of the programme has apparently been fulfilled, it still lacks the next step, which addresses the effects of the socially differentiated uses of ICT at school and at home.

Keywords: Children practices; ICT; Social Inequalities; Education; Home-School Relations

1. INTRODUCTION

In 2008/2009 the Portuguese government introduced the Magalhães (Magellan) computer (MC)[1] in the 1st cycle of basic education (CBE)[2]. It was a political measure that has raised the question of extending the social base of the use of information and communication technology (ICT), not only in schools but also in other contexts, such as in the family. This paper tries to give an account of family adhesion to this computer,

1 Named after Fernão de Magalhães (Ferdinand Magellan), the Portuguese navigator who was a pioneer for having discovered the passage from the Atlantic to the Pacific Ocean in the 16th century.

2 Our school system comprises three Cycles of Basic Education (CBE) and the Secondary School (10th through 12th grades) as compulsory education. The 1st CBE corresponds to the 1st through 4th grades (primary school); the 2nd CBE corresponds to the 5th and 6th grades; and the 3rd CBE corresponds to the 7th through 9th grades.

of some of its uses and their respective contexts, as well as to equate the question of inequality in opportunities and uses of ICT, based on two similar empirical studies conducted in schools from two towns in different Portuguese regions.

2. ICT, EDUCATION AND SOCIAL INEQUALITIES

We live in an era in which the role played by the so-called information and communication technologies (ICT) is increasingly more significant. For Castells (2007), although knowledge and information are important in pre-industrial societies, the uniqueness of the informational mode of development is that the production, processing and transmission of information constitute the main basis of productivity, made possible through the development of ICT and introducing a set of social relationships and structures. The development of ICT boosted forms of interaction, collaboration and activity among people, providing new possibilities, proposals and learning contexts, as well as opportunities to get acquainted with others and to acquire general knowledge and knowledge in specific fields (Viana, 2009). Thus, for children and young people who are born and grow up in a world of networked technologies - the "digital natives" (Prensky) or the "Internet generation" (Tapscott) - technologies become natural. They are instruments in their daily lives. On the contrary, for many adults, technologies mean an increased effort of learning ("digital immigrants", Prensky, 2001) to adapt to new social contexts, work and communication with others.

On the other hand, the problem of illiteracy does not arise like in the past. In developed countries, this issue has to do with the levels of literacy and the "info-excluded". As such, one of the serious challenges faced in today's society is related to social inequalities and the underlying power relations, which is a phenomenon that has assumed different names, such as info-exclusion, digital divide and digital gap. We are thus faced with a type of divide between two groups: those who have and those who do not have access to information technology. Recent research has made the contours of this divide visible (Cardoso, Costa, Conceição & Gomes, 2005; Cruz, 2008), and point to a complex and multifaceted reality. Thus, on the one hand, Almeida, Delicado and

Alves (2008) suggest a rapid spread in the use of computers and the Internet, with some blurring of social inequalities among children and young people at school; while on the other hand, Rodrigues and Mata (2003) note that the use of ICT has a stronger correlation with the level of academic qualification than with age, and thus blurring the generational effect (statistics show higher rates of ICT use in younger people because they are students, so they tend to be more skilled). In parallel, recent data show that in Portugal the number of children who use computers has increased, while at the same time the advantage that this group had on adults in the use of Internet has diminished (EU Kids Online, 2011; Ponte, Jorge, Simões & Cardoso, 2012).

Education has therefore become one of the key areas of intervention in face of the low levels of digital literacy and the underlying social inequalities found in Portugal. In the area of education, ICT holds a lot of potential. For schools, the computer and the Internet are seen as tools capable of enhancing new practices and new pedagogical relationships. Thus, ICTs are increasingly present in this milieu, even though technological renovation in schools does not necessarily imply pedagogical innovation (Coelho, 1992). Additionally, several studies point to the advantage of a prudent view regarding the effects of ICT, stressing that the simple application of ICT, without changing the practices of teaching and learning, does not induce significant changes in educational systems (Eurydice, 2001; Miranda, 2007).

Denoting an increasing weight in the schools, ICT are also increasingly present at home (INE, 2009), particularly in the case of families with school-age children. Incidentally, children's schooling arises as the main reason for families to acquire a computer and the Internet, as emphasized by Rodrigues and Mata (2003). For this reason, families with dependent children have more computers in comparison with those without dependent children (Almeida et al., 2008). Moreover, research suggests that not all families are proving to be equally equipped to perform their role in the "game" of school investment, noting inequalities in the mobilization for the education of their children, according to the sociological divide that permeates home-school relationships (Diogo, 2008; Diogo & Silva, 2010; Silva, 2003). Regarding the use of ICT, it is mainly the most socially advantaged groups that have such benefit

(Almeida et al., 2008). However, another study showed that extending the educational use of computers at home to different social groups can be translated into greater academic success (Fuch & Wossman, 2004). Thus, ICT may configure itself as a resource and an opportunity to access knowledge, with the potential effect of "compensating" the original social environment. However, this is not guaranteed and is even less automatic.

Research also shows that ICT can enhance communication in the relationship between families and schools, with the school and social effects that can arise, namely for children (Martínez-Gonzalez, Perez-Herrero & Rodríguez-Ruiz, 2005; Wiedemann, 2003). Thus, questions can be raised concerning the relationship of actors situated in family and school contexts. ICTs seem to open new channels of communication and participation, enhancing family-school interaction and possibly becoming a (material) medium that may contribute to the (socio-cultural) mediation (Silva, Coelho, Fernandes & Viana, 2010) between the school culture and the local culture, when considering home-school relations as a relationship between cultures (Silva, 2003). However, it is possible that some of the traits that have marked this relationship persist. Families are not a homogeneous group, and it is likely that their relationship with ICT not only varies depending on factors such as social class or ethnicity, but also on generation and gender, two key elements in intra-family relationships, as well as relationships with school.

3.A STUDY IN TWO SCHOOL COMMUNITIES

In this section, we briefly present the nature of our study, including the main tools for collecting and processing the data, as well as a characterization of the two school communities where the empirical work was conducted.

3.1. About the research

Both studies were conducted with a longitudinal approach (2009-2011) and are anchored in an ontological and epistemological stance of phenomenological nature, which is attentive to the intersection between

the deductive and the inductive, integrating an extensive component - based on surveys of teachers (four questionnaires)[3], parents (two questionnaires)[4] and students (two questionnaires)[5] - and an intensive one (through interviews with teachers and parents and the ethnography of a selected class in each of the two educational territories). The quantitative data were statistically analysed using SPSS and the qualitative data using thematic content analysis.

The research seeks to answer questions such as:

- Which social actors are linked to the Magalhães computer?
- What social representations do the different social actors have about the Magalhães computer?
- Who has and has not acquired the Magalhães computer? With or without the Internet? Why?
- What is the sociological profile of the acquirers of the Magalhães computer? And of the non- acquirers?
- Who uses the Magalhães computer (which social actors)? In what contexts?
- What are the modes of regulation of those uses? By whom? In what context?
- What are the uses of the Magalhães computer? In what contexts (classroom, playground, home,...)?
- What are the school and social effects of the uses of the Magalhães computer for the different social actors and in their interactions? In particular, in the classroom and in home-school relations.
- What characteristics singularize the Magalhães computer in comparison to other computers? And in comparison to the other didactic material? What are the effects that result from this singularity?

3 INQD1 (June, 2009); INQD2 (November, 2009), INQ3 (June, 2010) and INQD4 (June, 2011).

4 INQP1 (June, 2010) and INQP2 (June, 2011).

5 INQC1 (November, 2010) and INQC2 (June, 2011).

3.2. The school communities

The research was conducted in two sets of public schools, one based in the city of Leiria (Leiria Group of Schools) and the other in the city of Ponta Delgada (Integrated Primary School of Ponta Delgada).

The Leiria Group of Schools (LGS) is made up of eight Kindergartens, ten Primary Schools and one school for the 2nd and 3rd Cycles of Basic Education (CBE). In the school year 2009/10 the LGS had 1652 students, including 561 in the 1st cycle (1st through 4th grade). There were 185 teachers, distributed across the four levels of education, with 30 teachers in the 1st cycle.

The social environment of the five covered parishes includes a mix of urban and semi-urban influence and families with a wide range of academic qualifications and professions, with a significant number of middle class families. According to the survey of parents, over 90% of fathers and mothers are between 30 and 50 years old, with the fathers a little older (50% over 40 years old, compared with 37% of mothers). Regarding education, the majority has 2nd CBE, 3rd CBE or Secondary education (10th through 12th grade), with fathers having a slightly higher academic qualification (almost 30% with secondary and 14% with higher education, versus 18% and 10% of mothers, respectively). Regarding professions, more than 55% of fathers have blue-collar occupations (working class, agriculture/fishery), nearly 25% have administrative and service professions at an intermediate level and 16% have higher-level positions (senior staff, CEO and intellectual and scientific professions). As for the mothers, the distribution differs somewhat, with the majority working in administrative and service sectors. 10% of the women declared themselves as housewives. Also, 16% of the women have higher-level position. In general, there is social heterogeneity among the parents, with some preponderance of the working classes. There are about fifty immigrant families from Brazil, PALOP (Portuguese Speaking African Countries), Eastern Europe, China and Morocco.

The Integrated Primary School of Ponta Delgada (Ponta Delgada IPS), where the second study took place, consists of a total of seven schools, five of which include the 1st CBE. In 2009-2010 it had 204 teachers (79 in the 1st CBE) and 1949 students (978 in the 1st CBE).

The schools are located in urban and semi-urban parishes of Ponta Delgada, welcoming a socially heterogeneous student population, albeit with a considerable presence of beneficiaries of social welfare (58% in the case of the 1st CBE, in 2008-2009). As in Leiria, there is significant diversity of professions and education levels in the households. According to the survey of parents, more than two thirds of households have nuclear families, composed of both parents and children. The remaining are mostly single-parent households (13%), extended families (8%) and structures consisting of only one parent, child/children and other family members (5%). Fathers have a relatively higher average age than mothers: 38.7 years and 35.6 years, respectively. Regarding the level of parent academic qualification, there is a predominance of intermediate levels, with most having 2nd and 3rd CBE: 45% for mothers and 51% for fathers. Mothers tend to have higher level of academic qualification: 34% have a secondary or higher education degree, compared with 24% of fathers. As for the professional category, there is a greater incidence of more under qualified occupations in the case of the father (43%). In the case of mothers, there is a prevalence of intermediate categories, such as administrative and personnel services and sales (38%). Only 10% of fathers and 11% of mothers have senior management positions (senior managers, CEO and intellectual and scientific professions). Also, 18% of mothers are housewives.

4. TAKE UP AND USES OF THE MAGALHÃES COMPUTER BETWEEN HOME AND SCHOOL

We will present some of the main results regarding the acquisition of the Magalhães computer, its uses by children at home and at school, and the family role in the mediation between the two worlds of children: home and school. Simultaneously, whenever possible, we will cross these data with the issue of the social inequality of their uses and of family mediation. This second aspect, less common, will allow us to better check some possible social effects of the e.escolinha programme[6]. This is a case study (strictly speaking, a multi-case study), and as the

6 "E.escolinha" (literally meaning "e.little school") is the official name of this government initiative.

nature of qualitative studies does not allow generalizations, but instead contributes to a thorough examination of social processes with the consequent production of theoretical clues, it should always be confronted with other empirical studies.

The presented data result from the original final reports of each of the two projects (Diogo, Gomes & Barreto, 2011; Silva, Coelho, Fernandes & Viana, 2011).

4.1. Take up to the Magalhães laptop

We have noted that the Magalhães computer, through the e.escolinha programme, was the target of widespread acquisition by the families of both school communities. Thus:

- In the Leiria group of schools, initially 80% of families came into ownership, but with significant differences from school to school: between 95% and 28%. However, this acquisition has been increasing, with 89% ownership in 2009-2010 and 93% in 2010-2011. The data also show that upon arrival of the Magalhães computer (2008-2009), 94% of those on social welfare and 64% of those non-integrated on social welfare acquired the laptop;
- In the Ponta Delgada group of schools, the Magalhães computer was required by 92% of the families, ranging from 86% to 97%, depending on the school. Contrary to what happened in Leiria, and throughout the mainland, in the Azores there was just a phase distribution, and the equipment arrived at Ponta Delgada at the end of the 2008-2009 school year. During the second phase of national distribution, the programme e.escolinha was cancelled in the region.

Previous data suggest that this acquisition has led to a democratization of access to these technologies in the two school communities (Silva & Diogo, 2011), in which the slightly lower acquisition by the Leiria middle class families occurred when there was, in general, at least one computer at home (Silva et al., 2011). Table 1 shows that the possession of the laptop varies little in relation to the parents' academic qualification. The data presented below was meant to analyse

how this initially observed democratization of access was translated in the uses by children from different social groups.

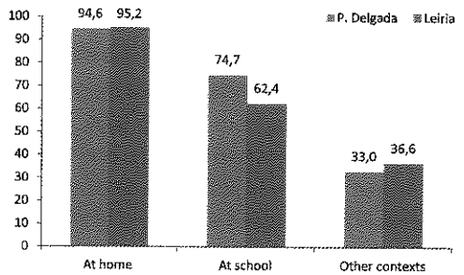
Table 1: Ownership of the MC according to the parents' Academic Qualification (%)

	LEIRIA		PONTA DELGADA	
	Father	Mother	Father	Mother
≤ 1st CBE	92,6	88,9	86,4	85,4
2nd/3rd CBE	93,1	93,5	88,3	86,3
Second./University	79,6	83,3	85,4	91,0
N	174	174	250	250

Sources INQC2

4.2. Contexts of the Magalhães use by children

The crossover of information collected from parents and teachers shows that children used the laptop in different contexts, albeit with different intensities and situations.



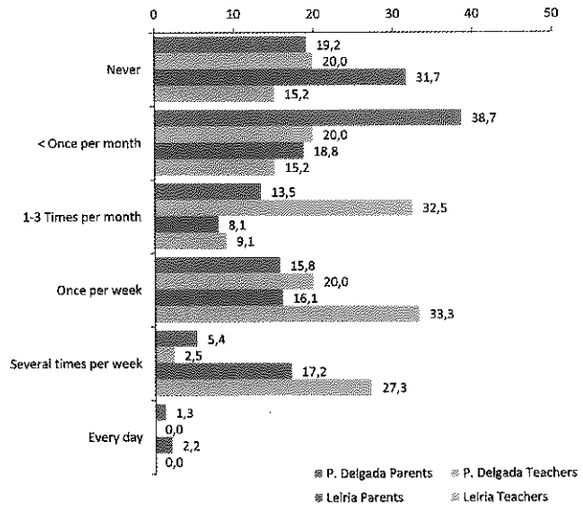
Source: INQF1
Note: Percentages calculated in relation to the total of those who possess the MC. Ponta Delgada: N = 297; Leiria: N = 186.

Figure 1: Magalhães use by children in different contexts (%)

After roughly a year of use, the computer was widely utilized at home by the children: 95% in Ponta Delgada and 95% in Leiria of those who possess the laptop, according to the parents, which represents 85% of total households surveyed in Ponta Delgada and 84% in Leiria. In

78% of Ponta Delgada families and 74% of Leiria families who have the equipment, the children use it at home at least once a week, and in 63% (Ponta Delgada) and in 55% (Leiria) of families, they use it several times a week or every day. Thus, we noticed regular use of the Magalhães by children at home.

The computer was also used by children in school activities, but more sporadically than at home. According to parents, 75% of Ponta Delgada children and 62% of Leiria children who have the laptop use it in class with the teacher. As for the teachers, 75% in Ponta Delgada and 76% in Leiria, surveyed in July 2010, stated that their students used the Magalhães in the classroom. We notice two aspects in this regard: a) the coincidence of values about computer use in the classroom in Ponta Delgada between parents and teachers b) some non-coincidence of these same values between parents and teachers in Leiria, with teachers indicating higher use.



Source: INQF1 and INQP1
Note: The percentages of parents were calculated in relation to the total of those who possess the MC (Ponta Delgada: N = 297; Leiria: N = 186) and the percentages of teachers to the total of inquired (Ponta Delgada: N = 40; Leiria: N = 33).

Figure 2: Frequency of Magalhães use in the classroom, according to parents and teachers (%)

However, there is one common aspect: the data in both communities point to use with low regularity. Only 23% of Ponta Delgada families and 36% of Leiria families, in which there is a laptop, indicate that the child brings it to school one or more times per week, which seems to show a smaller, but slightly more regular use of the Magalhães in the classroom in Leiria. The computer arises primarily as a resource that is sporadically used in the classroom. According to parents, 58% of children in Ponta Delgada and 51% in Leiria never use it or use it occasionally (less than once a month), while teachers say that it is 40% and 30% (Ponta Delgada and Leiria, respectively). On the other hand, 23% of Ponta Delgada teachers and 61% of Leiria teachers indicate that the computer is used in class at least once a week. According to 53% of Ponta Delgada teachers and 24% of Leiria teachers, the Magalhães computer is used by students less than once a week in the classroom. In other words, teachers tend to indicate higher frequency of use of the Magalhães in the classroom when compared with parents, with this gap being most notorious in Leiria. Especially in the latter case (Leiria), we have doubts about whether the teachers are presenting politically correct information, to the extent that additional information points to lower effective use of the MC in the classroom.

In addition to the family and classroom spaces, the Magalhães computer is used elsewhere by 33% of Ponta Delgada children and by 37% of Leiria children who have the equipment, according to the parents. The regularity with which the computer was used in other places (outside the home and the classroom) is far less than its use at home: only 12% of children from Ponta Delgada and 8% from Leiria use it several times a week or every day, with the main location for such use in the homes of relatives and friends (98% and 90%, respectively).

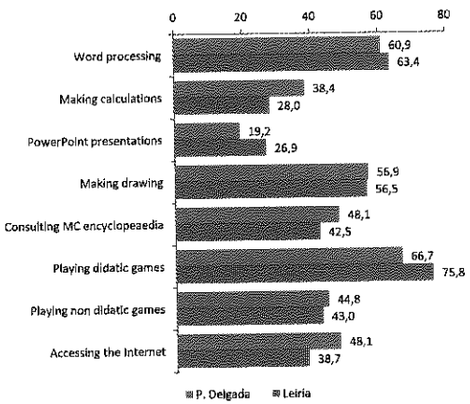
In both communities, the Magalhães computer was also used elsewhere, beyond the homes of relatives and friends. Although quantitatively unimportant, other contexts cover a diversity of locations, indoors and outdoors, such as the school playground, at leisure time activities, wireless spaces, commercial and food spots, libraries/museums, tutoring centres, gardens/parks, streets or cars, confirming the versatility of the laptop.

4.2.1. Uses of the Magalhães computer at home

In this section we describe the uses of the Magalhães in the home, which was the chosen context of use by the children. The data (Diogo et al., 2011; Silva et al., 2011) reveal that this household use derives largely from the initiative of the child, which led us to postulate that the Magalhães becomes a true personal computer for him/her. Working class families are the exception, where we noticed that the Magalhães is also used with some regularity by other family members, including siblings, and thus it partially emerged as a family computer.

4.2.1.1. Characterization of its uses by children

As for what the child does on the Magalhães computer at home, parents explain a variety of uses, emphasizing the educational uses and those more compatible with schoolwork.

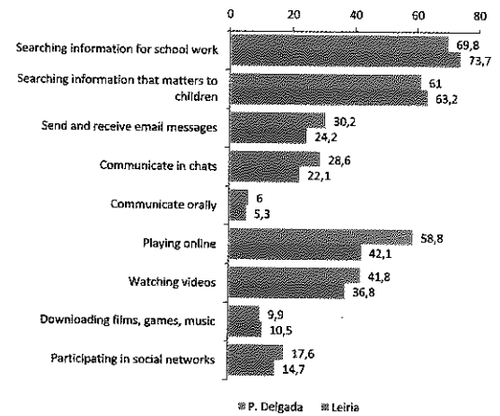


Source: INQF1
Note: Percentages calculated in relation to the total of those who possess the MC.
Ponta Delgada: N = 297; Leiria: N = 186.

Figure 3: Activities usually done at home by children with the MC (%)

In both contexts, educational games (67% and 76%) and word processing (61% and 74%) stand out among the uses. Secondly, use for making drawings (57% and 57%), consulting encyclopaedias on the

computer (48% and 43%), Internet access (48% and 39%) and non-didactic games (45% and 43%) are mentioned.



Source: INQF1
Note: Percentages calculated in relation to the total of those who possess the MC.
Ponta Delgada: N = 182; Leiria: N = 95

Figure 4: Children's use of the Internet on the Magalhães at home (%)

Accessing the Internet appears as the most frequent use, according to the parents, for researching information for schoolwork (70% and 74%) and subjects that interest the child (61% and 63%). These uses occur more than most recreational uses, such as playing online (59% and 42%), watching videos (42% and 37%) or downloading movies, games or music (10% and 11%). Also, uses that involve communication with others occur less than researching information (30% and 24% send and receive email messages, 29% and 22% communicate in written chats, 18% and 15% participate in social networks, 6% and 5% communicate orally).

As we see, both in the uses of the Magalhães, in general, or of the Internet, in particular, there were no significant differences between Ponta Delgada and Leiria.

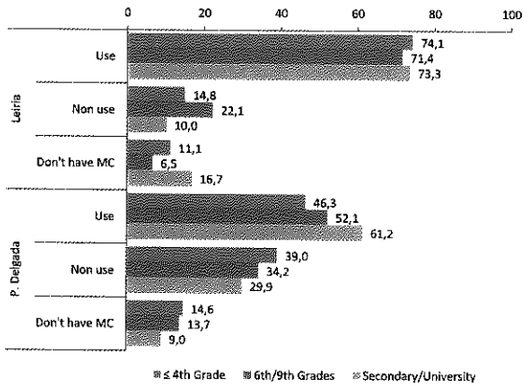
4.2.1.2. Uses at Home by Different Social Groups

To analyse the uses of different groups in society, in order to not overload the text, we took into consideration the academic qualification of

parents. In most cases we present only the data related to the mother since she is the one who more often supervises children's use of computers in school and in general, including the Magalhães laptop (Silva & Diogo, 2011).

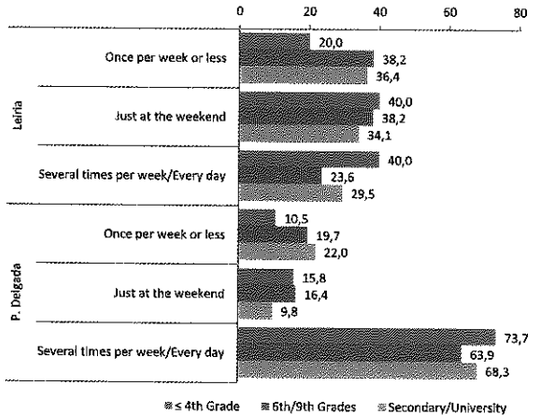
In examining the percentage of children who used the Magalhães computer at the end of the 2010-2011school year, by level of education of the mother, in Figure 5 we noticed some inequalities in both school communities, particularly in Ponta Delgada. In Leiria, although the proportion of children who use the computer is about the same in the various levels of academic qualifications, we note that it is in families where the mother has higher academic qualification that there are: (i) more cases of children who do not have the laptop (which matches the previous observations), (ii) fewer cases of children who do not use the laptop for breakdown. But it stands out that in Ponta Delgada there is less computer usage for breakdown associated with lower academic qualifications of the mother: 48% of children whose mother had the 1st CBE or less would not use the laptop for breakdown, and this percentage was substantially lower for those with higher education (28% in 2nd/3rd CBE and 29% in secondary/university). These results suggest other forms of inequality beyond the ownership of the equipment and that have to do with the ability of households to maintain the laptops, pointing out the limits of any programme that is limited to distributing computers to children.

Regarding the frequency with which children use the Magalhães, there are also noticeable differences in use, with regard to the mother's academic qualification (see chart 3). A higher proportion of children with less educated mothers use the laptop on a regular basis. In Leiria, 40% of children of mothers with the 1st CBE or less were using the computer several times a week or every day, while the same was true for 24% for those who have mothers with the 2nd/3rd CBE and 30% with secondary/university education. In Ponta Delgada, there is the same trend, although the differences are less marked: when the mother has the 1st CBE or less, only 11% of children use the computer with low regularity (1 time per week or less), whereas in families where the mother has secondary or higher education, use increases to 22% of children.



Source: INQC2
Note: Percentage in relation to the total of inquired, by level of academic qualification. Ponta Delgada: N = 250; Leiria: N = 174.
* Mostly owing to breakdown

Figure 5: Children who used the MC at the end of 2010-2011, according to the level of mother's academic qualification (%)

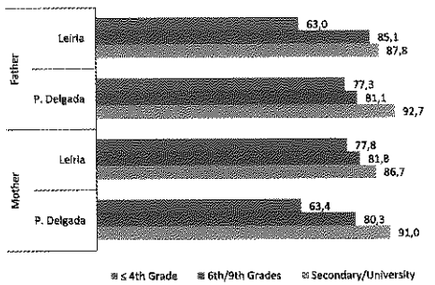


Source: INQC2
Note: Percentage in relation to the total of those who own the MC, according to the level of academic qualification. Leiria: N = 124; Ponta Delgada: N = 134

Figure 6: Frequency of the Magalhães use by children at home, according to the mother's level of academic qualification (%)

One of the possible reasons for this less regular use of the Magalhães by children from more educated families could be the use of other computers at home. Indeed, Figure 7 highlights a lower use of other computers in families where parents have a lower level of education in both school communities. In Leiria, 88% of children whose father has secondary/higher education use other computers at home, and 63% when the parent has the 1st CEB or less. Considering the mother's academic qualification, the trend is similar (87% and 78% respectively). The data are particularly contrasting in Ponta Delgada, if we look at the education of the mother: 91% (secondary/higher) versus 63% (1st CBE or less).

In short, despite a higher proportion of children in the most disadvantaged social groups who stop using the Magalhães computer due to equipment breakdown, those are also the same children who use the laptop more often, through more assiduous use, possibly because it is the only way for a significant number of these children to access new technologies.

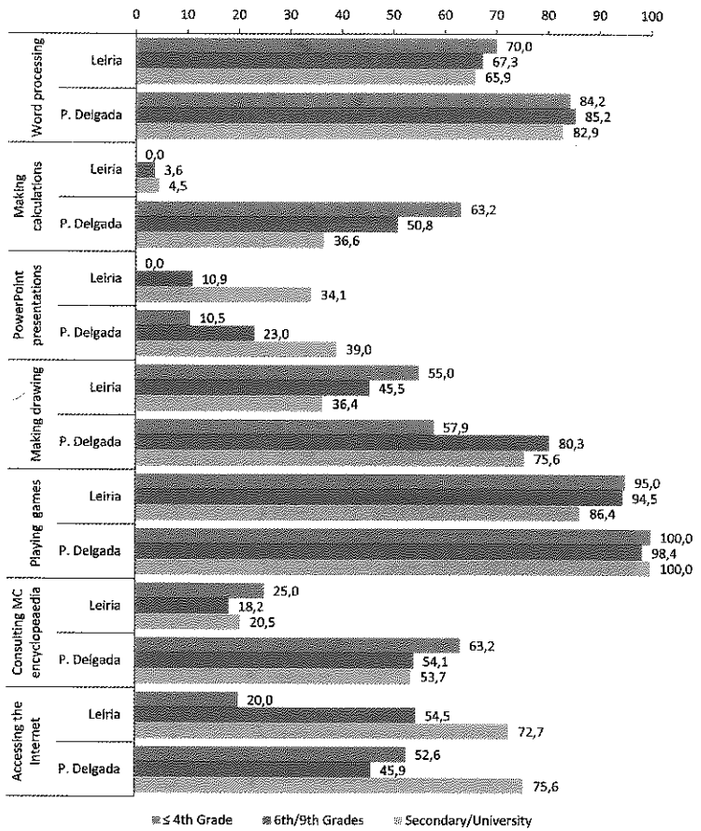


Source: INQC2
Note: Percentage in relation to the total of inquired, by level of academic qualification. Ponta Delgada; N = 250; Leiria: N = 174.

Figure 7: Usage of other computers by children at home, according to parents' academic qualification (%)

From analysing what kids do on the Magalhães, in relation to the mother's academic qualification, Figure 8 shows that word processing (ranging between 66% and 70% in Leiria and between 83% and 85% in Ponta Delgada) and games (ranging between 86% and 95% in Leiria, and between 98% and 100% in Ponta Delgada) appear as activities that generally occupy the children, regardless of their social background in

the two contexts under study. According to these data, children from various social groups seem to have generally appropriated the computer of the programme e.escolinha for activities of a diverse nature, suggesting some effect of democratization of use.



Source: INQC2
Note: Percentage in relation to the total of those who use the Magalhães. Ponta Delgada: N = 121; Leiria: N = 119.

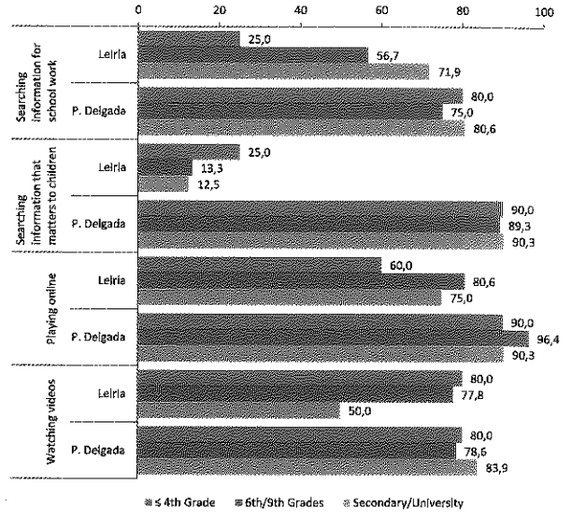
Figure 8: What children do on the Magalhães at home, according to mother's academic qualification (%)

Nevertheless, there are some socially dissimilar uses. This includes making presentations (PowerPoint or similar software), which occurred with children from families in which the mother is more educated, both in Leiria as in Ponta Delgada.

There is a similar pattern for Internet use in the two school communities, although in a more accentuated way in Leiria. There, only 20% of children from less educated families access the Internet on the laptop, in contrast to the more educated families in which the same is true for 73%. In Ponta Delgada, there are still relevant differences: 53% and 76%, respectively. Thus, the use of the Internet seems to be an important social divide in the uses of the notebook.

A higher percentage of children from families in which the mother is poorly educated also tend to consult the encyclopaedias on the laptop, in both contexts, but especially in Ponta Delgada, which is likely to be due to the fact that these children have less Internet access. Nonetheless, this is interesting in that there is a possibility to search for information in the encyclopaedias incorporated into the Magalhães itself, as part of the e.escolinha programme, which may have some compensation effect over the observed inequalities in accessing the Internet.

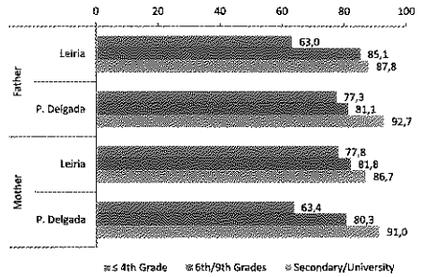
As for what the kids do on the Internet on the Magalhães computer, by the mother's academic qualification, Figure 9 shows different trends in the two contexts under analysis. In the case of Ponta Delgada, the various uses of the Internet differ slightly, depending on the mother's academic qualification. In any case, note that this use hides the previously found inequalities in access to the Internet. In Leiria, the previously mentioned inequality adds socially differentiated use of the Internet. Research for schoolwork and online games are most often performed by children of "more educated" mothers than by the "less educated"F: 72% versus 25% (in relation to research) and 75% versus 60% (in relation to games). In contrast, the search for information about issues that matter to children and watching videos are a more common practice in low SES families: 25% versus 13% (in relation to research) and 80% versus 50% (relative to watching videos). A more educational use by families with higher education was also observed in the context of other studies carried out in Portugal (Almeida et al., 2008).



Source: INQC2
Note: Percentage in relation to the total of children using the Internet on the Magalhães. Ponta Delgada: N = 69; Leiria: N = 65.

Figure 9: What children do on the Internet on the Magalhães at home, according to the mother's academic qualification (%)

The above results suggest that accessing the Internet is an important divide in the uses of the Magalhães, which corroborates other studies (Almeida et al., 2008). Thus, the e.escolinha programme seems to compensate little for the disadvantage of low SES children in accessing ICT, as observed in the use of other computers and demonstrated in Figure 10. It shows that the use of the internet on the other computers at home is quite marked by parental education in the two contexts: in Leiria, only 44% of children of parents with lower academic qualification (52%, considering the mother's education), while in families where the father has secondary/higher education the proportion is 82% (73%, considering the education of the mother). In Ponta Delgada, the contrast in computer use is even higher, especially considering the mother's academic qualification: 51% versus 90%, respectively, in the two extreme categories of education (64% versus 90%, considering the father's education).

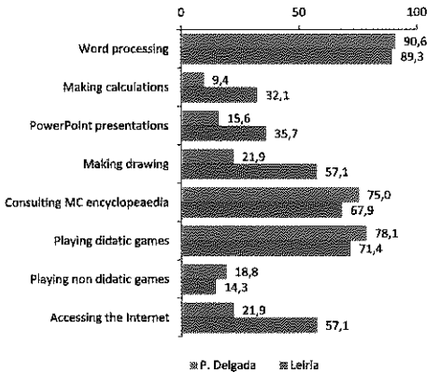


Source: INQC2
Note: Percentage in relation to the total of inquired by level of academic qualification.
Ponta Delgada: N = 250; Leiria: N = 174.

Figure 10: Children who use the Internet on the other computers at home, according to parents' academic qualification (%)

4.2.2. Uses of the Magalhães computer at school

The use of computers in the classroom, besides being sporadic, appears to be less multifaceted than at home, especially in Ponta Delgada.

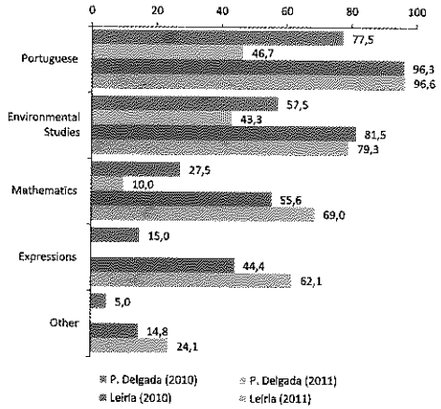


Source: INQD3
Note: Percentage in relation to the total of teachers who use the Magalhães in the classroom. Ponta Delgada: N = 32; Leiria: N = 28

Figure 11: Type of Magalhães' use at school by children (%)

In both communities, the use of the laptop in school activities reveals the same trend, and according to teachers, focuses on didactic

games (78% and 71%), consultation of encyclopaedias (75% and 68%) and, especially, word processing (91% and 89%). In relation to this, the curricular areas that are most common when using the Magalhães are Environmental Studies (72% and 79%) and Portuguese Language (97% and 93%). Mathematics (34% and 54%) and "Expressions"[7] (19% and 43%) include little use of the computer.



Source: INQD3 and INQD4
Note: Ponta Delgada: N = 40 (INQD3), 30 (INQD4); Leiria: N = 27 (INQD3), 29 (INQD4).

Figure 12: Curricular areas worked through the Magalhães use, according to teachers (%)

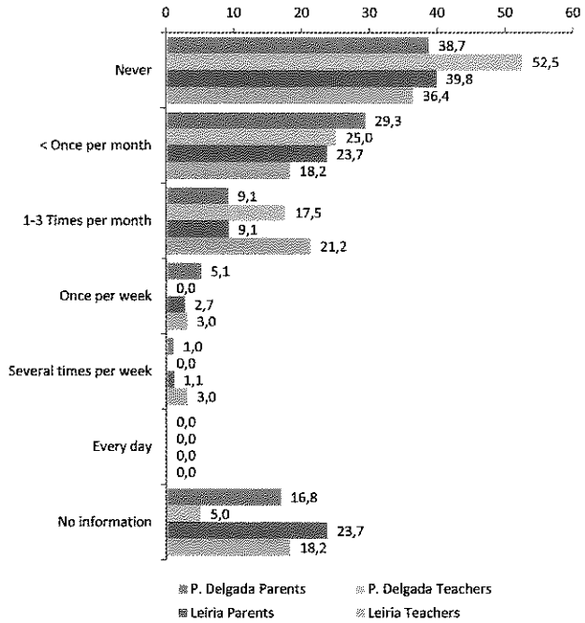
The big difference - unlike what happens at home – is related to the use of the Internet in the classroom, as this is rarely used in the teaching activities in Ponta Delgada (22%), contrary to what occurs in Leiria (57%). This disparity seems to be linked to the fact that there is limited Internet connection in the classrooms of Ponta Delgada schools, while in Leiria all school classrooms have a wireless network. When the Internet is used, it is mainly for research: 90% and 73%, while it is also used by 50% and 27% of students to play games (Ponta Delgada and Leiria, respectively). In the case of Leiria, accessing blogs is as significant of an activity as the games: 27%.

7 "Expressions" is a term that, in the Portuguese school context, encompasses subject matters such as arts and crafts, drama or music.

Data suggest that use of the Magalhães in school activities did not have any significant impact in the daily life within classrooms, which does not display a broad and effective integration of this resource in the teaching activities.

4.2.3. The Magalhães computer between home and school

Notwithstanding that the Magalhães computer is a portable device, offering the possibility of continuity between the work done in school and at home, and, as we have seen, to be used by children either at home (regularly) and at school (less frequently), it is not a widely and regularly used resource for homework in the two communities.



Source: INQP1 and INQD3
Nota: Parents' percentages in relation to the total of those who have a Magalhães (Ponta Delgada: N = 297; Leiria: N = 186) and teachers' percentages in relation to the total of inquired (Ponta Delgada: N = 40; Leiria: N = 33).

Figure 13: Frequency of the Magalhães' use for homework, according to parents and teachers (%)

The data collected from parents and teachers show that in less than half of the cases in Ponta Delgada do teachers ask for homework to be done by students with the Magalhães computer (44% of families owning a computer and 43% of teachers surveyed). In Leiria, the situation is very similar if we consider the responses of teachers (45%), and it is slightly lower in the responses of parents (37%). The regularity of laptop use for homework is generally sporadic: only a small residual number of families (6% and 4%) and teachers (0% and 6%) in Ponta Delgada and Leiria indicate that homework with the use of the Magalhães is passed more than once a week. Therefore, mobility, allowed by this equipment and enhanced in other contexts, is not often used as a link between schoolwork done at school and at home.

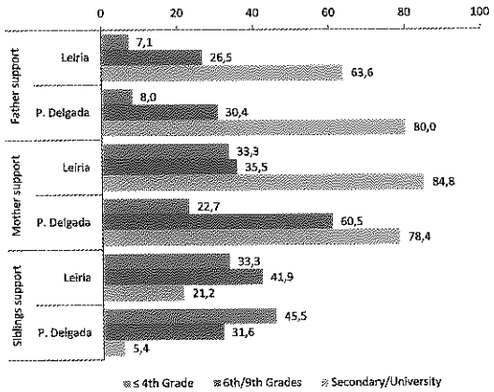
When this type of activity is developed, it involves computer uses similar to those in school activities, both in Ponta Delgada and in Leiria: word processing (71% and 100%, respectively), researching in encyclopaedias on the computer (59% and 79%) and accessing the Internet (47% and 50%). In the case of Leiria, we should also highlight the significant use for making PowerPoint presentations (43%).

4.2.3.1. Family mediation on the use of the Magalhães and other Computers

As the Magalhães is predominantly used by children at home, we tried to trace the mediation of families in the uses of computers, in general and for schoolwork.

4.2.3.2. Family Mediation by Gender and by Social Group

Besides being the family member who is most involved in homework in general (Diogo et al., 2011; Silva et al., 2011; Silva & Diogo, 2011), the mother is also the person who accompanies the child the most in the use of the Magalhães to do homework, as well as in the overall use of the Magalhães and other computers in both school communities (Diogo et al., 2012). Against this backdrop - which seems to confirm the idea of being the 1st CBE before a predominantly "female relationship" (Silva, 2003), that is to say mainly among women teachers (over 90% of the teachers at this level of education) and mothers (at least in regular and informal interactions) - we tried to understand the possible variations in this support according to the level of education.



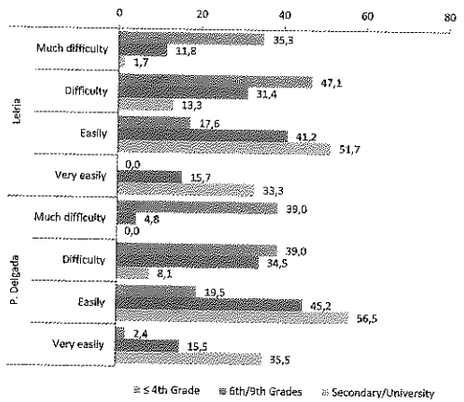
Source: INQP2. N = 171 (father); 171 (mother); 171 (siblings)]
Note: Percentage in relation to the total of children who have homework to be done with the Magalhães, by level of academic qualification. Ponta Delgada: N = 97; Leiria: N = 70.

Figure 14: Support for homework with the Magalhães computer, according parents[8] academic qualification (%)

The support given by parents for their children's homework to be done with the Magalhães varies quite a lot according to the level of parental academic qualification. In general, support is higher from those who have a higher academic qualification and vice versa. This finding applies to both fathers and mothers. We should note that the need for two types of knowledge seems to cross school knowledge, so to speak, and also "technological" knowledge. The possession of cultural capital, probably with a greater academic component, appears to make a difference. On the other hand, siblings tend to replace parents in households with lower academic qualification, thus matching what we found in another study concerning family involvement in schoolwork, in general (Diogo, 2008).

The perception of the degree of difficulty reported by parents to help their children in using computers points out significant contrasts between less and more educated parents. These contrasts again suggest that access to ICT alone will not automatically result in a democratization of its use.

8 We considered the academic qualification of the father in the case of the support given by the father and mother's academic qualification to examine the support given by the mother and the siblings.



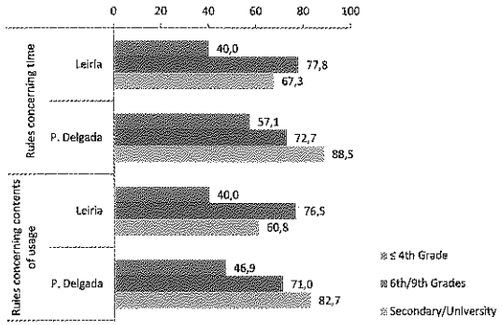
Source: INQP2
Note: Ponta Delgada: N = 187; Leiria: N = 128

Figure 15: Degree of difficulty/easiness of parents to help the child to use computers, according to their academic qualification (%)

Another aspect of parental mediation of children's use of new technology has to do with the imposition of rules. Regarding the Magalhães computer, most families stated that they impose usage rules on the children. In particular, we found that such rules were concentrated on two aspects: use of time (daily or weekly, for example) and content. However, we again observe (Figure 16) variations according to social group. Both in Leiria and Ponta Delgada, mothers with lower academic qualification are less willing to impose rules, and this finding is valid for either of the two types of rules (time and content). In Leiria, mothers with an intermediate level of schooling impose more rules (in both contexts), while in Ponta Delgada more educated mothers impose rules the most (again, in both types of rules). It should be noted that the intermediate imposition of rules by mothers with higher academic qualification in Leiria are much closer to those of the mothers who imposed the most rules (with an intermediate academic qualification) than the mothers of the lowest academic qualification (which never exceed 40% in this community).

Thus, consistent with the previously presented data, the rule that lower cultural capital is translated into the imposition of fewer rules

at home remains "valid", while the opposite is only partially true (in Ponta Delgada).



Source: INQP2
Note: Percentage in relation to the total of children who use the Magalhães computer. Ponta Delgada: N = 146 (rules of usage), 153 (rules about time); Leiria: N = 100 (rules of usage), 108 (rules about time).

Figure 16: Existence of rules at home for the child to use the Magalhães computer (time and contents of usage), according to the mother's academic qualification (%)

4.2.3.3. Profiles of the Magalhães Computer and Family Mediation

In order to obtain a synthetic and integrated view of the results that we presented, we conducted a multivariate analysis (cluster analysis performed from the factorial axes of a multiple correspondence analysis), presented in more detail in another text (Silva, Diogo, Gomes, Coelho, Fernandes & Viana, in press), according to which three different groups were identified with regard to their relationship with the Magalhães Computer:

- Cluster 1: Offline use of the MC / Social heterogeneity and access to ICT;
- Cluster 2: Non-use of the MC / Lower access to ICT / Families with lower school capital;
- Cluster 3: Widespread use of the MC / Higher access to ICT / Families with intermediate or high school capital.

Crossing these three profiles related to the usage of the MC with the indicators of family mediation in the use of ICT, we found that families

tend to frame and regulate the use of the MC and other computers in an unequal way depending on their school capital, as follows:

- Cluster 1 does not impose rules of usage of the MC (time and content) for the child.
- Cluster 2 is characterized by a) greater difficulty in helping the child to use computers, and b) a lower presence of cases in which parents support the child in homework achievement when it are required to be done on the laptop;
- Cluster 3 stands out as an overrepresentation of cases in which a) it is easier to help the child to use computers, and b) the parents support the child in homework achievement using the laptop.

Thus, it is possible to say that these three groups, which have different profiles regarding their relationship with the MC and other computers, as well as their social inclusion, are characterized by establishing family mediation that is different both in the mobilization and capacity of parents to support their children in the use of computers, particularly for schoolwork, as well as in the regulation of computer use. In particular, there is a split between those family contexts that have this mediation in the several mentioned aspects, and those family contexts that are characterized by the absence of mediation, following a social class divide, with "higher" mediation in socially advantaged groups and "lower" mediation in socially marginalized groups.

In short, as in other studies (Almeida et al., 2008; Ponte, 2011), these results confirm the role of family mediation in the uses of new technologies by children and how this mediation is constrained by the educational/cultural capital of parents. Thus, parental mediation arises as a mechanism through which educational/cultural capital acts on the relationship of children with ICT, alerting us to the perverse effects that any political programme can produce if it limits itself to merely distributing equipment to families and to democratizing access without taking into consideration the framework provided in the home and at school on how to use such equipment, or in other words, it does not consider democratizing only access, but also success.

5. CONCLUDING SUMMARY

In summary, let us recall that the data show:

- Massive acquisition of the Magalhães, which seems to aim the goal of the governmental policy when distributed that laptop as a way of "democratizing" access to ICT;
- The existence of a greater proportion of other computers in the home by the families with higher academic qualification, which explains a slightly lower ownership of the Magalhães by these groups in the region of Leiria;
- The home as the main context of Magalhães use for the child, not closely followed by the classroom (with increasing usage) and other contexts (particularly homes of family and friends);
- Using the laptop in school activities includes mainly word processing, didactic games and researching in encyclopaedias, and in the classroom, Portuguese is the subject which more uses the Magalhães, followed by Environmental Studies, and with much smaller representation, Mathematics and Expressions;
- A more frequent and widespread use of the Magalhães at home by children of parents with a higher degree of education;
- Significantly uneven family support, denoting a quantity and quality of aid, which is stronger in socially advantaged groups;
- Less imposing rules on the use of the Magalhães at home by families with less education.

Thus, the data suggest a double trend: a) widespread acquisition of the Magalhães computer, which is even a bit higher in the case of socially disadvantaged families in Leiria; and b) a selective use of the computer by the different social groups, accompanied by family mediation that is also selective.

The first aspect is related to a democratization of access to ICT, through the Magalhães, and the second one denotes a social inequality in the uses of ICT, which is not automatically removed with access. This means that, although the first political goal of the e.escolinha programme (while the question of what happened at the national scale remains) has apparently been fulfilled, it still lacks the next step, which addresses the effects of the socially differentiated uses of ICT at school and at home.

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