

# *Digital Resources (Internet) and Analog Resources (Manual) in Primary Education*

## *Contributions of an investigation in the Supervised Teaching Practice*

Henrique Gil

ESE – Instituto Politécnico de Castelo Branco  
CAAP – Universidade de Lisboa  
Castelo Branco, Portugal  
[hteixeiragil@ipcb.pt](mailto:h Teixeiragil@ipcb.pt)

Ricardo Tavares

ESE – Instituto Politécnico de Castelo Branco  
Castelo Branco, Portugal  
[ricardof89@outlook.com](mailto:ricardof89@outlook.com)

**Abstract**—The research carried out in the Supervised Teaching Practice in the scope of the Master's Degree in Pre-School Education and Teaching of the 1st CEB had as main objective to verify the main implications, from the comparative point of view, regarding the use of a digital resources (Internet) and the use of an analogue resource (Manual) in the teaching / learning process in a group of 1st CEB. The methodology implemented was qualitative, emphasizing the application of an action research through participant observation with the collection of field notes (students, pedagogical pair, Cooperating Advisor) and semi-structured interviews with the first teachers of the 1st CEB, for a triangulation of data. The subsequent analysis of the data showed that the students presented a great motivation that was expressed in an active participation of the students and the use of the Internet created conditions for the learning to have been more motivating, interesting and engaging.

**Keywords**—Primary Education; Internet; Manual; Supervised Teaching Practice.

### I. THE GENERAL FRAMEWORK OF ICT IN SOCIETY

ICTs are used by public administration bodies, businesses, families and individuals. The slight spread of ICT practices changes in the way of life of societies. It assumes importance in today's collective and individual life. Technology is assumed by society, exerting a decisive influence on its development. Portuguese society has benefited from these technologies, in public, central and local administration and in Portuguese business structure. The advantage of ICT diffusion has contributed to simplifying administrative processes and reducing associated costs. It also contributes to streamlining the relationship with citizens and companies. The main form of interaction with citizens and technology is the existence of channels for online suggestions and complaints, payments and filing of forms / declarations. In general terms, the main functions that ICT can play in the 1st CEB can be grouped, fundamentally, in four domains: as source of information; as tools or tools to support the production and presentation of works; as didactic resource and as development and support of distance communication [1]. Students breathe technology and usually master the tools.

As stated by [2], there is a reason for it to become more

and more "(...) in the use of ICT in an educational context [which] has to do with the increase in the number of digital natives, [since they have ] greater levels of familiarization and digital skills than the general population. "In the last decades the implementation of various ICT modernization projects, actions and programs related to ICT in teaching / learning has been progressive integration of new technologies in Portuguese schools. What impact has it had on schools? What were their implications in classroom teaching practice? We then refer to some of the national projects and programs that seem to us to be most significant, developed at different rates and achieving different results. According to [3] and [4], there are two major moments of the introduction of ICT in the Portuguese educational system: the first was the Minerva Project, which ran from 1985 to 1994 and the second was the Nónio Século XXI Program, which began in 1996 Other initiatives, such as the Internet @ EB1 program, which focused on the promotion of the educational use of the Internet by teachers and students in public schools of the 1st Cycle of Basic Education, through the creation of a monitoring and training device centered in schools [3]. At present, ERTE (Educational Technology and Resources Team) has been supporting a diverse set of national initiatives and has also made an international 'bridge' through the inclusion of schools in community-based projects (eg eTwimming).

### II. THE INTERNET AND ITS POTENTIALITIES IN EDUCATIONAL CONTEXT

The Internet is the most advantageous and used technology today. Internet communications can 'carry' work with personal information to a large number of people at a reduced cost. It can be said that the use of the Internet contributes to the development of society, to the dissemination and better access to information that results in an improvement in the life of citizens [5]. The Internet improves communications and access to information. Interveners exchange ideas and information cooperating with each other. Currently this means of communication is used at home, at work, to carry out work or simply in leisure activities.

The main advantages of the Internet are: communication between people in a fast and effective way, via e-mail and

chat; improves the ability to generate information; New opportunities to build networks of people and groups that were not possible before the emergence of new technologies; networks.

The emergence of electronic networks does not increase isolation, nor does it harm society, culture and human relations; On the contrary, it is clear that ICTs are useful in stimulating cooperation, sharing knowledge and ideas, developing partnerships and enriching activities. Taking into account the potential that the Internet can provide in society, it must be contextualized in school so as to be able to provide other ways of learning and teaching with approaches that are more in keeping with the present digital society and which is already closely associated to the daily routines of children and young people [6].

### III. CONTEXTUALIZATION OF RESEARCH IN THE FIELD OF SUPERVISED EDUCATION PRACTICE

With regard to the research carried out, it was intended to find an answer to the following research question: "What are the comparative implications of using the Internet (digital resource) and the textbook (analogous resource) in the teaching process learning at primary education?"

To this end, the following objectives were defined: a) To promote the use of ICT in an educational context; b) To frame the use of the Internet in the teaching / learning process in the 1st CEB; c) Implement and diversify educational resources in the classroom: digital resource (Internet) and analog resource (school manual); d) To compare the implications in the use of digital resource and analog resource in the teaching / learning process.

The research was carried out involving a group of the 2nd year of the primary education, with 26 students and aged between 7 and 8 years, in a school in Castelo Branco. Also involved in this research were the Cooperating Advisor, the "pedagogical pair" and teachers from the primary education associated with the grouping. The research was based on a qualitative methodology that had a practical framework as an action research. The research tools used focused on participant observation with the respective collection of field notes (student involvement, Cooperating Adviser and "pedagogical pair") and semi-structured interviews with group teachers, in order to broaden the sources of data for a better and more in-depth data triangulation.

### IV. ANALYSIS OF PRACTICAL INTERVENTION SESSIONS

This research was implemented in 4 sessions, according to the schedule proposed in the framework of the Supervised Teaching Practice in primary education. The interventions lasted for 90 minutes each. It should be noted that these 4 sessions corresponded effectively to 2 pairs of sessions. That is, on the 1st day the Manual was used and on the 2nd day digital resources were used from the Internet, for the same theme, in order to establish a comparison in the performance and in the learnings of the students. There were no specific days to implement the activities, there was only the concern to

implement them according to the theme of the week and with timing and objectives approved by the Cooperating Advisor.

Each of the resources was prevalent quite differently. First, the content was addressed by the researcher. The students then used the school handbook to apply their knowledge to various activities on the topic in question and then used the Internet to complement / continue the study of the same content and establish a comparison between the use of the two types of resources.

Table 1 presents the chronological organization of the practical intervention sessions, which include the two sessions using the Manual and the other two sessions using the Internet:

TABLE 1: CHRONOLOGICAL ORGANIZATION OF PRACTICE INTERVENTION SESSIONS

<i>Date</i>	<i>Resource</i>
24 de novembro	Manual (recurso analógico)
25 de novembro	Internet (recurso digital)
9 de dezembro	Manual (recurso analógico)
10 de dezembro	Internet (recurso digital)

At the two sessions on November 24 and 25, the theme was "Hygiene Habits". The students met the expectations with the expected results for this type of activities. They were participative when requested, solved activities autonomously and asked for help only to confirm that their answers were correct. During the activities they used the manual as a complement to the contents that were discussed. As the contents were approached, some students responded to the activities of the manual without being asked for, autonomously, whenever they felt the need for this effect, and it can be inferred that the presence of this resource is very significant in the classroom, given the high frequency of its use. Take the example of a student: "I already know where it is, it's on this page here!" In this regard, both the Cooperating Adviser and the "pedagogical pair" felt that the manual is already well rooted in teaching practices: "Students already know how the process unfolds. They are used to using the manual to do the activities. Needless to say ... they know what the pages are and what the activities are.) An example of the "pedagogic pair" intervention: "You can see that the manual is fundamental for students and they master it very well ... the objectives were achieved and they were able to resolve the proposed activities."

In relation to the digital resources of the Internet, the following blog was used by a teacher of the 1st CEB, so that there was an adequacy to the target audience, objectives and contents: [www.habitos-de-higiene.blogspot.pt](http://www.habitos-de-higiene.blogspot.pt) (Figure 1):



Fig. 1. Homepage of the blogue «Hábitos de Higiene»

When the students went to the library and sat down at the tables with the computers, it was possible to see a great deal of pleasure in the manipulation of this resource. It is important to note that the investigator had downloaded each of the sites into separate tabs. In this way, it was sufficient for the student to select one tab at a time to access each of the three sites. From the observation made, it was verified that the students immediately began to use each of the 'installed' sites, without any difficulty. It was also possible to observe that they 'jumped' from place to place whenever they understood it and whenever they needed it. Although the researcher was close to each of the students (six students, one in each computer) with the concern of being able to clarify some technical aspects, the students only had doubts about completing the worksheet. For this purpose, some of the students' comments are presented: A: "The sites are cool ... they have the whole information."; D: "I've seen all three and I've already found what I wanted."; H: "It's very cool ... that's easy! The matter is there all."; Q: "With the Internet it's easy and it's cool."

At the end of the first intervention session, the Cooperating Advisor was asked about the positive and negative aspects of this activity. It indicated that the fact that the class was very large and that the number of computers with Internet access was insufficient for all the students made this first session less well (in behavioral terms) and gave the suggestion of the next class if divide the class into two equal parts and put two students per computer.

In comparative terms, the enthusiastic involvement of children in using a resource that had hitherto been scarce or non-existent was notable. They demonstrated great aptitude when using computers and using Internet resources. It was possible to observe that the use of this resource is an added value, because to obtain the answers the students become more autonomous, having to look for the information based on the orientation that they had in the worksheet that was given to him. According to the observation made in connection with students' behavior when using the computer / internet, their enthusiasm and commitment to the activities were visible, and it could be said that the change to digital support made all the

difference, a difference that was seen in the promotion of higher rates of motivation. And, at the same time, it was still possible to verify that there was an increase in the autonomy that the students demonstrated to have when they used these digital resources.

The other practical intervention sessions, which corresponded to the 9th and 10th of December, addressed the theme related to "Professions". The procedure was the same as in previous sessions. In this case, the website used was the «Junior» (Figure 2):

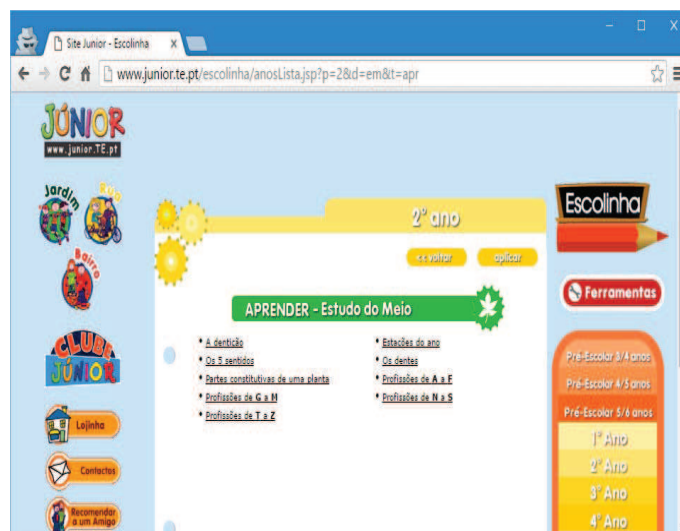


Fig. 2. Homepage do site «Junior»

As in the previous case, the use of the computer / Internet was highly motivating for students. They continued to be focused and involved in carrying out the activity. It was not necessary for the researcher to encourage the students or to motivate them because they were already enthusiastic and willing to carry out the activity that was proposed to them. In reflection with the Cooperating Advisor and with the "Pedagogical Pair", it was possible to conclude that the activity was better planned in relation to the previous one, since in this the distribution of the students by the computers was the most adequate, allowing in this new organization the students could share knowledge, discuss, reflect and share tasks. With this approach, it was possible to verify that the use of the computer by a small group of students can foster a collaborative and cooperative work.

## V. MAIN CONCLUSIONS AND REFLECTIONS

The activities worked on these intervention sessions allowed to draw some conclusions, in the sense of having evidenced on the part of the students a preference for the use of the computer / Internet. The exploited activities have been more profitable where the Internet has emerged as a complement to this type of learning. However, it was not a 'neutral' complement, on the contrary, it was shown that using this digital resource, in addition to motivating students, makes them more autonomous and dynamic. The students showed a lot of interest in this type of technology, which leads them to

assume that they are willing to use the computer for educational purposes.

As a negative aspect, it was the fact that each student could not have a computer with Internet access, because, the objective of this investigation was that all students had the opportunity to work individually with the computer / internet, simultaneously, so that all of them could enjoy the same type of resources and a gain of time. Such an opportunity was difficult to provide, since the school does not have sufficient technological means for so many children. However, conditions were created for all students to use the computer / Internet through a system of rotation. In the comparison between the manual and the Internet, in terms of acquisition of learning there were no significant differences. However, in terms of student behavior, the changes were evident, for the better, when using the computer / Internet, presenting levels of motivation, involvement and autonomy more consistent and higher.

Regarding the semistructured interviews made to the other teachers of the 1st CEB of the group, it is possible to affirm that there is a positive feeling on the part of the teachers about the importance of the use of ICT in the teaching / learning process, since they feel that the students feel more motivated and more involved. With regard to the use of ICT in the context of the classroom it was possible to verify that its use is, in general, sporadic and punctual. The main reasons seem to lie in the fact that these teachers do not have ICT training focused on the teaching / learning process and the unfavorable conditions of the schools on this issue.

In global terms, it can be concluded that the Internet, when well used, can be an educational resource full of potential in the educational environment. However, the teacher should be

concerned to provide students, in addition to different strategies and approaches, a diversity of resources to support their learning. In this sense, the teacher should be responsible in the decision making regarding the inclusion or not of the Internet and the ICT, in context classroom. However, in the case of pupils who can be considered as 'digital natives', their willingness and willingness to use ICTs is enormous, as has been observed in this research, and this intrinsic motivation must be create new frameworks and new contexts that provide and generate better and more learning.

## References

- [1] L., Campos, and L.Verissimo, "*Aprender a Educar. Guia para Pais e Educadores*". Porto: Fundação Manuel Leão, 2010.
- [2] H. Gil, "*As TIC, os Nativos Digitais e as Práticas de Ensino Supervisionadas. Um novo espaço e uma nova oportunidade.*" 200, Acedido em 14 de dezembro de 2016 em [https://repositorio.ipcb.pt/bitstream/10400.11/2371/1/Conferencia\\_Henrique\\_Gil.pdf](https://repositorio.ipcb.pt/bitstream/10400.11/2371/1/Conferencia_Henrique_Gil.pdf).
- [3] J. Ponte, "*As TIC no Início da Escolaridade*". In J. Ponte (Org.), *A Formação para a Integração das TIC na Educação Pré-escolar e no 1º Ciclo do Ensino Básico (Cadernos da Formação de Professores)*. Porto: Porto Editora, 2004.
- [4] K. Elissa and B. Silva. "*As Tecnologias de Informação e Comunicação nas Reformas Educativas em Portugal.*" *Revista Portuguesa de Educação*,14,(2), 2001, pp 37-48.
- [5] F. Nunes, F. (2004). *A Apropriação das Tecnologias de Informação e Comunicação na Sociedade Portuguesa*. Acedido em 12 de dezembro de 2016 em <http://www.ub.edu/geocrit/sn/sn-170-40.htm>.
- [6] A, Neto, "O Uso das TIC nas Escolas do 1º Ciclo do Ensino Básico do Distrito de Bragança", Instituto Politécnico de Bragança, 2010.