

VIRTUAL DIGITAL ENVIRONMENT IN THE PORTUGUESE HOSPITAL SCHOOLING CONTEXT: PERSPECTIVES OF THE HEALTH AND EDUCATION PROFESSIONALS

Joana Figueiredo, PhD

Portucalense University, Portugal

Sílvia Cardoso, PhD

Catholic University, Portugal

Abstract

The study that originated this article falls within a research project in education, trying to contribute towards the materialization of the right to access to school education by hospitalized children/youths, who are prevented from attending their regular school.

Focusing on the Portuguese context, we tried to understand how hospital may be perceived as an intervening party and interlocutor in a new educational-pedagogical field, by analysing educational guidelines and pedagogical practices, namely those integrating new Information and Communication Technologies (ICTs). Among the various dimensions analyzed, we considered the potential of ICTs to overthrow the barriers to communication, with alternative tools to classroom learning, and to facilitate the teaching and learning in computer environments. Pursuant to this, this article has been conceived by an emerging situation of the study carried out, with a sample of subjects in six public hospitals and organized according to the case study methodology (Yin, 2001). Our analysis was based on data from official documents, opinions of health professionals (questionnaire/n = 163) and educators, who work in hospital settings (semi-structured interview/n=15).

Results show the marked discrepancy and little expression of/in existing experiences. On one hand, there are some institutions that make use of ICT to facilitate the functional connection of students with their schools of origin; on the other, there is a clear need to foster motivation for the continuation of the student's tasks by maintaining procedures for teaching and learning with new work possibilities, focused on the student, in the team with their teacher and in distance education.

Keywords: Information and Communication Technologies; Inclusive Education, Hospital Educational context

Introduction

We live in a complex World, marked by fast transformations associated with certainties, uncertainties and paradoxes, aggregated to the discourses and practices or resulting from their joint construction of (con)sensed meaning. The school experiences the dilemmas of the integration of synergies involved in its increasingly more demanding task of educating citizens for living socially and professionally, in communities more and more aware of their individual and cultural diversity (Figueiredo & Cardoso, 2013a).

In truth and within this framework of diversity, similarities are accentuated and different stand out in the ways to interpret cultures and their socio-political integration. Thus, to understand the school and its cultural priorities in the service of citizens, it is necessary not to overlook its mission and allow it to be developed, providing equal opportunities for training and integration in active life, to all those attending it, particularly during the compulsory education years. The Constitution of the Portuguese Republic, as a cornerstone of the entire current legislative body, makes a stand, from its very first version, for the right to education and culture (Article 73rd) as a fundamental right for every citizen, requesting the state to ensure basic compulsory and free education (Article 74th). These principles are absorbed in 1986 by the education sector with the publication of the Law on the Education System (Lei de Bases do Sistema Educativo - LBSE), following which a set of legal instruments (Convention on the Rights of the Child (1989), Basic Law on the Prevention and Rehabilitation and Integration of People with Disabilities (1989), World Conference on Education for All (1990), Salamanca's Declaration (1994), legitimizing Inclusive Education.

For the topic being discussed, the inclusion of special needs students into regular school, despite the universally accepted principles standing for the equality of integration of disabled persons into the class and school community, special needs and/or chronically ill citizens are still faced with difficulties in finding specific and adequate answers to their needs and educational processes in the school curricula.

This happens due to several reasons (e.g., poor articulation in the processes of socialization and education between schools and families, lack of adequate educational pathways to meet the needs of these individuals), which anchor problems that need effective and realistic solutions, under which it seems important to explore the added value of the integration and intelligent use of Information and Communication Technologies (ICTs), available through learning technology already available online and the

implementation of the guidelines of educational policies (Decree-Law no. 3/2008, of 7th January, as amended by Law no. 21/2008, of 12th May), which validate their value, believing in the potential educational responses they will be able to provide when used as teaching resources and in the training for teachers and other educators.

Over the last few years and at several Portuguese public hospitals, several projects have emerged, the result of partnerships with the Government. Such projects have allowed, on the one hand, to equip hospitals with new technologies and to transform hospitalized children/youths into privileged actors in their enjoyment; on the other hand, the (re)thinking of the construction of a conceptual interactional framework between technology and education, which may induce a reflection on the practices of the utilization of ITCs in hospitals when creating schooling environments. Among these, one highlights three experiences: the TeleAula project, the TIC Pediátrica project and also the ENECMA (esTou na Escola com os meus Amigos – “I am at School with my Friends”) project.

Used to construct and share knowledge, new information and communication technologies (ICTs) may cause the (re)birth of a new interest for school and to renovate the motivation towards learning for the possibilities of strategy and methodology diversification, which may become quite captivating and motivating when associated to more stimulating and attractive visual environments or when the execution of certain actions implies creative and appealing strategies associated to playful results, full of meaning for the student’s learning. Belchior et al. (1993, p.15) and Ponte (1996) advocate that ICTs facilitate not only the access to information, but also the trust of students in technologies, which allows them to explore their potential, which may be achieved with motivation and creativity in using computer applications. In this context, one tried to understand the representation of the institutional educational actors on schooling practices as developed in a hospital context, aiming for the educational continuity and the school integration of hospitalized students, for this article, regarding the processes involving ICTs.

The Method

Research is “something that you look for. It is walking towards better knowledge and it must be accepted as such, along with all hesitations, detours and uncertainties implied (Quivy & Campenhoudt,1998, p.31). It is triggered in processes with cycles that translate into key stages, within which the researcher seeks to achieve the reality of facts so that, in the end, meaningful representations of his/her critical look at that same reality may be built.

This journey involves choices that must be made on the basis of the object and the focus to explore. This is how the methodological tools involved in the investigation are justified, inscribed under the qualitative paradigm, whereas, in structural terms, it assumed the shape of a multicase study (Yin, 2001) and, in operational terms, it is included under the organization proposed by the Grounded Theory, supported on Strauss and Corbin (1990).

The result obtained from the content analysis of interviews, based on semi-structured guidelines, directed at teachers and kindergarten teachers who work in a hospital context (n = 15) were added to the statistical analysis made on a questionnaire addressed to doctors and nurses (n = 163) of the Paediatric Service of six Portuguese public hospitals, in the mainland and at the islands, allowing further data analysis, systematized by the statistical program SPSS 21.0.

Based on these methodological procedures, this articles focuses on exploring ICTs' pedagogical potential in teaching in special access conditions, namely when keeping up with school in a hospital context; for such, we revisited the scores of the respondents on the three items of the questionnaire: can the hospital be understood as an educational space? Does the existence of a support educational room facilitate the adaptation of the child/youth to the hospital? In hospital, can the child/youth benefit from the care provided by teachers/educators?

This dimension of the research puts one face to face with three Information and Communication Technologies projects already in place, whose mission is to encourage children/youths, who are absent from school due to illness, to fight the medical and emotional challenges they face each day by maintaining them in their school context. In combination, we gave voice to health professionals and educators who work in some of the hospitals studied to obtain elements that would give us an understanding of how the constant and intense technological change, which poses new challenges to both school and teachers, is being integrated into practices, generating new forms of teaching and learning as well as fostering soft skills and the empowerment of the student's autonomy in the search for knowledge and its internalization.

Virtual digital Environments: projects and partnerships in hospitals

In Portugal, the first measure to introduce new technologies in teaching took place with Project MINERVA (Computer Means in Teaching: Rationalization, Valorisation, Actualization) between 1985 and 1994 and had an important impact in a set of groups, mainly in the 1st Cycle of Basic Education, because "it had the following objectives: i) equipping schools with computers, training of teachers and teacher trainers; ii) the development

of educational software; iii) the promotion of research in the area of ICT in Primary and Secondary Education” (Santos, 2005, p.77). Constituted of about 25 poles scattered across the country, based in Universities and Colleges of Education, and which enjoyed autonomy in developing their activities, it played a key role in the organization and promotion of the project. The National Coordinating Office was in the Cabinet of Studies and Planning of the Ministry of Education. Each of the poles provided support to a number of schools and contemplated the different levels of education (kindergartens, elementary and secondary education schools, special needs schools (MCT, 1997).

Later, following the political order to include special needs students and the guideline included in the Plan for Action for the integration of Disabled Individuals (2006), a national network of Technology Resource Centres for Special Education Support (CRTIC) was created. There are currently 25 Resources Centres in School Groups across the country, whose mission is to “assess pupils with SEN, of a permanent type, and the adequacy of supporting technologies to their specific needs; information and training of teachers, professionals, families and education assistants on the problems of different domains of impairment or disability” (DGIDC 2007, p.4).

According to the guidelines being discussed, these centres are given a set of tasks, which include monitoring students who are hospitalized or sick at home and who use video conferencing systems connected to school (PT TeleAula Solution).

The “Solução PT TeleAula”, developed by “PT Inovação”, based on videoconference, enables the interaction of students with permanent special needs, at home or hospitalized, with the classes into which they are formally integrated. The TeleAula project is developed in a context of inclusive school, trying to offer all children/youths identical opportunities in the access to school and is settled in the possibilities of communication and interactivity, offered by ICTs, together with telecommunications (FPT, 2006). This project, represented in this study by cases A and C, includes a set of features and services, as follows: videoconference (audio and video), messaging (chat), file exchange, sharing of applications (cooperative work), selection of active camera (remotely and locally).

When we questioned teachers and educators on the use of the videoconferencing/Skype/Distance Learning Class, we encountered two groups of very different responses: those who use these technologies, having implemented systems that run daily, and those that do not use them.

Two of the hospital units being studied (cases: A and C) refer to use them with positive results, with gains in interactivity enhanced by remote communication technologies, collaboration and cooperation of all those who fight for minimizing the difficult contours children, youth and young adults

experience during the period of hospitalization. It aims to provide a better quality of life and to ensure the continuity of school education achieved by connecting to the reference schools, as stated by AE9 and AE8.

In 2005, we were one of the first hospitals where the Paediatric ICT Project was implemented, which allowed our children to contact with friends and family, using Messenger, and to enjoy the TeleClass system with their schools of origin, as well as to surf the web (AE8). Here, we have schoolchildren who remain at the hospital, sometimes four weeks in a row. This connection to life outside is very important, not only from a pedagogical point of view, but mainly psychological. (AE9)

AE9 describes the procedures implemented by the hospital unit as to operationalize the service, stating:

(...) We contact the regular education school and inform them on the clinical condition of the child/youth hospitalized here at the service and try to articulate with the school the best way to continue the process of teaching and learning for the children [child's name]. We join efforts as to establish a schedule adequate to the availability of the school and the hospital here. Then, at the time of each lesson, we connect to Skype and establish a connection with the teacher who will be teaching that subject at that time. (...) Generally, this procedure is applied to students attending 2nd Cycle and up. (AE9)

Therefore, the student may, right after the class, exchange ideas with the teacher and receive or send files, since the system allows for an at-a-distance and real-time interaction with the dynamic of activities developed in the classroom. According to this line of action, AE8 refers that:

We use TeleAula in cases of prolonged hospitalization. With this application the child maintains a bond between the hospital and the school activity, leading the child to feel that the school has a goal that connects her/him to life.

Furthermore, we are connected to the Moodle platform that connects four hospitals and that is managed by CRTIC, where each Hospital School puts all activities, projects, materials and assignments. (AE8)

Interactivity is a key element in the search for autonomy and focalization of education for the student, since it enables the student to pass from his/her condition of passive element to the condition of operating element. As had already been the focus of reflection, the interactive nature of computers enables children to work at their own pace, resolving obstacles for themselves and learn from others (Machado, 1992). Reinforcing this idea, Carvalho (2007, p. 36) states that the important thing is to create situations that involve students in learning, preparing them for the decision making

process in a globalized and competitive society. The direct stakeholders in Distance Learning projects are members of the school community of the various schools and the hospital, as well as other actors who create educational dynamics.

AE7 also relates having already resorted to Skype, however, in the present school year this mode of communication has not been used.

Skype... We've used it with two students that were hospitalized for a month, a month and a half, more or less. But its use is quite dependent on the children's motivation. This year, we did not use it. (AE7)

The second project – TIC Pediátrica – has the objective of endowing the paediatric areas of public hospitals with technological infrastructures that allow hospitalized children to use computers with/without webcams, for leisure, for bonding and keeping up with family and school, for contacting with friends while using, for instance, family blogs. It targets children hospitalized in paediatric units of hospitals, aged 2 to 12/14, and the technicians, hospital volunteers and family members of these children. This initiative is supported by the Ministry of Health, Secretariat of State for Youth and Sports and with the collaboration of Public Hospitals (paediatric units) as partners to promote and contact the beneficiaries.

The operationalization of the project is achieved through the conjugated implementation of infrastructure (multimedia computers with broadband internet connection) and recreational and educational curricula for hospitalized children and training for the hospital staff and relatives of the children, which aims to ensure proper and effective monitoring of the children when using computers and communications equipment. This project is implemented at the Instituto Português de Oncologia do Porto, Hospital Dona Estefânia, Hospital Pediátrico de Coimbra, Centro Hospitalar do Barlavento Algarvio, EPE, and Centro Hospitalar Leiria Pombal. In this study, this project is represented by cases B and D.

The third and final project under study in this article is the ENECMA (esTou na Escola com os meus Amigos) project. It was born in 2005 from a co-funded project called Escola Virtual *front-office*, which aimed to fill a gap in supporting students who were absent from school for health reasons or any other reasons, thus being forced to lose their connection to the school, with repercussions on their academic success, by promoting distance learning projects or remote support for users of the Regional Directorate of Education of Madeira, unable to attend primary or secondary education.

Currently, ENECMA's action has been growing and focusing on students that are outpatients, since their hospitalization periods have been decreasing. The type of distance learning provided by ENECMA has been proving to be an effective alternative, whenever certain simple participation

requirements are met by the teams of teacher/student, in which the student's illness is taken into account.

AE1 refers, in case E, using the project “*Estou na Escola*” at the hospital unit where he has been teaching in the previous years. This project was elaborated from a Moodle basis, but it is quite simplified to help teacher manage contents for their students, also featuring an easier course administration, which allows constant monitoring of the student's progress.

According to the interviewee, the project ceased to exist at the hospital:

It is not done. Until the last school year, we used the project “*Estou na Escola*”. The project stopped existing because the 1st Cycle teacher who worked at the hospital left. This project meant that the School's teacher would put materials on the platform, which the teacher would then download and help children/youths solve them (AE1).

At the case F hospital, AE6 states they do not use any distance communication system that connects the hospital and the schools of the hospitalized students.

No, we don't use them. (AE6)

In the cases not referring to the organization of educational follow-up with the use of communication and information technologies, such as AE1, AE6 and AE7, communication with the regular teaching school, when it happens, seems to take place using the parents as liaisons. They are responsible for the logistics organization and for the communication between regular teaching school and the hospital.

I ask the parents of children who are in school to ask teachers for the books and worksheet and I'll try to keep up within my ability. My training is in early childhood education but I'm watching the various cases the best I can. (AE6)

We communicate via phone and sometimes email to send worksheets. (AE7)

Based on the report of AE9, (case A), on the type of communication/relationship established between the hospital and the regular education school during the hospitalization of a child/youth, we found that the intervention methodology meets the position previously assumed by AE8.

The teachers articulate with the regular teaching schools, actively and co-ordinately, so that the contents taught in schools are also followed by students here at the hospitals. The subjects are worked here and at schools. With 6-year old students still quite immature or students with specific problems that prevent them from using school activities, gameplay is used a lot, but always with a teaching objective. They start with play-doh, hand games, etc. Games are chosen according to

the development of competences of the curriculum. We have been using the Projeto TeleAula. (AE8)~

We have some cases of youths that underwent the 9th grade exams, in Mathematics and Portuguese, here at the hospital. (AE8)

Focusing on the opinion of health professionals (doctors and nurses) on the appropriateness of continuing education in the hospital, we isolate three questions, namely: Can the hospital be understood as an educational space? Does the existence of an educational support room facilitate the adjustment of children and young people to the hospital? In a hospital environment, will the child benefit from the care provided by teachers/kindergarten teachers?

On if the hospital may be perceived as an educational space, one observed that 52.1% agrees and 44.17% strongly agrees, which accounts for 96.3% of agreeing answers (see table 1).

Table 1: Frequency and percentage of answers of the interviewees considering the 1st item of the questionnaire.

		Frequency	Percentage (%)	Valid Percentage (%)	Accumulated Percentage (%)
The hospital may be perceived as an educational space	Strongly disagree	0	0	0	0
	Disagree	0	0	0	0
	Neither agree nor disagree	6	3.7	3.7	3.7
	Agree	85	52.1	52.1	55.8
	Strongly agree	72	44.2	44.2	100.0
	Total	163	100.0	100.0	

When questioned on if the existence of an educational support room facilitates the adjustment of children and young people to the hospital, 50.9% agrees and 40.5 strongly agrees. As a whole, we've obtained 91.4% of agreeing answers (see table 2).

Tabela 2: Frequency and percentage of answers of the interviewees considering the 7th item of the questionnaire.

		Frequency	Percentage (%)	Valid Percentage (%)	Accumulated Percentage (%)
The existence of an educational support room facilitates the adjustment of children and young people to the hospital.	Strongly disagree	0	0	0	0
	Disagree	2	1.2	1.2	1.2
	Neither agree nor disagree	9	5.5	5.5	6.7
	Agree	83	50.9	50.9	57.7
	Strongly agree	66	40.5	40.5	98.2
	No answer	3	1.8	1.8	100.0
	Total	163	100.0	100.0	

When questioned on if, in a hospital environment, the child benefits from the care provided by teachers/kindergarten teachers, 43.63% agrees, whereas 43.56% strongly agrees, with a level of agreement of 90.19% (see table 3).

Tabela 3: Frequency and percentage of answers of the interviewees considering the 8th item of the questionnaire

		Frequency	Percentage (%)	Valid Percentage (%)	Accumulated Percentage (%)
In a hospital environment, the child benefits from the care provided by teachers/kindergarten teachers.	Strongly disagree	0	0	0	0
	Disagree	3	1.8	1.8	1.8
	Neither agree nor disagree	12	7.4	7.4	9.2
	Agree	76	46.6	46.6	55.8
	Strongly agree	71	43.6	43.6	99.4
	No answer	1	.6	.6	100.0
	Total	163	100.0	100.0	

Considering the answers of the health care providers and bearing in mind the level of agreement on the three questions – above 90% -, one understands that they support the continuity of education while children/youths remain hospitalized, which leads us to consider that it is a possible option from a contextual and material point of view, beneficial to ensure favourable learning experiences for the well-being of these patients.

In effect, in an educational system that defends a truly inclusive school, the students’ particular needs must be recognized and satisfied, with individual projects, with alternative curricula (Order no. 1/2006), together with general experiences given to other citizens. These should include different rates of learning, experiences, the individual's interaction with the environment, being determinant that they contain curricular adaptations, diverse teaching strategies (Canário, R., Alves, N., & Rolo, C., 2001) and a good school organization and management (Santos, 2006) supporting teachers/educators in guiding, planning and disseminating knowledge and strategies to reach out to the students, so learning occurs.

It is in this context of pedagogical practice that we look at the advances made by technological tools, which, today, allow for real-time interactions and for the development of collaborative and tutorial strategies, enabling a link between hospital and school communities in order to allow networks of pedagogical work that may enrich the students’ learning and the teachers’ expertise. According to Oliveira and Fisher (2007, p.29) "the judicious use of information technology in supporting the teaching and learning process provides students with access to a powerful tool supporting

the construction of new knowledge. It also contributes greatly to overcome the barriers linked to the traditional curricular structure, enabling the integration of students to different ways of learning”.

The educational agents interviewed on the advantages and disadvantages of the use of new technologies, as to maximize the emotional and educational welfare of students hospitalized for a long time, reaffirm the notion of advantage in the use of such equipment in the situation under discussion. For these,

Computers help surpass the initial fears of hospitalization. (AE1)

There are some cases that, as soon as they get here, youths ask if there are any computers. We try to mobilize them for other type of activities, such as puzzles or paintings, but there are some cases where the computer helps in the process of interaction and initial disinhibition. (AE8)

I see no disadvantages in using them and since there are children with mobility issues, computers make these children’s life easier. Here we have two desktops and we have laptops with internet connection (for isolation). In addition, children can bring their laptops to the hospital, but these remain in their rooms. Also we have wireless in the hospital, which is an added advantage. (AE10)

ICTs not only allow adapting and setting up activities, but also adjusting tasks to different levels of difficulty and development, answering and solving difficulties and the students’ potential. Furthermore, the use of computers by the child/young patient may allow channelling positive adjustments in the face of illness and hospitalization, which is important for the transition into the rehabilitation process. This perspective is particularly important given the opportunity the hospitalized child/young person has to be mentally active and busy in answering to the responsibility of participating in their education in special conditions.

Therefore, one might work the motivation to learn with the mediation of an educator/teacher, in a second-chance education that has a similar quality to the one experienced in a regular school, under a perspective of equal access and educational success.

At the same time, by interacting with their teachers and peers, they improve their ability to learn, to work in teams, to be proactive in addressing challenges posed by e-learning systems, videoconferencing, among others. Thus, in the long run, it may be a stimulating environment for learning soft skills through the use of the tools available, granting them the ability to solve problems and the consequent autonomy to explore and exercise their own actions with a sense of obtaining curricular knowledge.

AE10 refers that using computers motivates students. She shares the experience of creating an Online Newspaper, to attract and to mainly motivate youths.

We always start with a game and then go to school activities. That's how we work, with the aim of motivating them to learn all activities. (AE10)

One of our greatest concerns right now are the youths. It is very difficult to get them to attend classes. They stay in their rooms, attached (inverted commas) to their computers. We are already preparing the next year (2014), so that we create an Online Newspaper. It will be a tool to try and captivate older students to stimulate writing and reading skills and also interaction. The existence of wireless at the hospital is an asset that we will enjoy. We will also create an area here in the room for the edition of the newspaper. (AE10)

The computer broadens the opportunities for learning but, being so versatile, it includes a diverse range of activities, many of them with the potential of being linked to school work. These two aspects of computer use connect it to academic learning and access to knowledge, as well as being a facilitator for network interaction, facilitating entertainment in response to isolation by hospitalization. AE10's point of view is corroborated by Zuliane Freitas (2001), for whom:

(...) Learning environments based on information and communication technologies, which include the use of computer technology, computers, internet, tools for Distance Education and other resources and digital languages, provide activities for educational purposes, interesting and challenging, favouring the construction of knowledge, in which the student seeks, explores, questions, is curious, searches and proposes solutions. The computer is a means of attracting students with special educational needs to school because, as he/she has contact with this equipment, he/she is able to abstract and verify the applicability of what is being studied, without fear of error, building knowledge by trial and error (p.2).

ICTs may be seen as a facilitated access to information and knowledge, to moments of joy, entertainment and evasion when, somehow, the individual is isolated due to illness. These resources may also bring the hospital closer to the outside world for these youths, by enabling the contact with family and friends through messaging, videoconference and other functionalities, in a greatly important action to become familiar with the students' individualities and their reaction to the outside world dynamics.

Conclusion

Throughout the article, we analysed the role of Communication and Information Technologies (ICTs) by focusing on their pedagogical teaching potential, in this particular case as to allow the continuity of the right to access to school and to educational success to citizens that, according to their age group, are included in compulsory education and that are temporarily prevented from attending school due to illness. Therefore, believing in the possibility the educational system has of creating alternatives to formal teaching during hospitalization periods, towards the continuity of the right to access to school and the transition, within a normality framework, to the school of origin, after the post-hospitalization period.

We concluded that, when used according to a strategic intervention plan, careful and articulated with the context, situations and people, ICTs make a stand by facilitating the access to knowledge and education and schooling activities. Therefore, under a knowledge construction perspective, they facilitate active work and social relationships between teacher-student-class in the access to information, research, communication and sharing of knowledge and they also come forward as indispensable tools to learn and to teach in the age of information and knowledge, able to break down the barriers that may arise from the limited physical space of isolation due to hospitalization.

We found that there are national hospitals that make use of Skype/Distance Learning to maintain contact with the student's regular education school in order to promote interest in the learning process and contact with colleagues, registering good results, both at a school level and on an emotional well-being level, but many still do not make use of these technologies, reason why a most urgent intervention comes across as very necessary as to give equal opportunities to all children and young people in the situation of hospitalization.

In a society in constant social and cultural change, Information Technologies and Communication have been contributing towards the construction of a new kind of society - the information society, leading to different paths to knowledge, such as knowing how to research, how to interpret, how to learn and how to integrate knowledge from different sources, generating the need of the child/young person to acquire habits of research, analysis and selection of information, as well as the acquisition of competences that allow them to actively participate in social life (Duarte, Marques, Tomás & Pereira, 2002).

In truth, the study corroborates our initial perception that ICTs has a substantial potential in the teaching/learning processes and must be implemented, with previous knowledge, in whichever educational context the target-student is included, integrating the social context, the training of

teachers and the interest manifested in integrating ICTs into his/her pedagogical practice (Henriques, 2010), because “when integrated, adapted and used in conjunction with other strategies, they are an asset to the learning process of students, leading them to the construction of their own knowledge and making the entire process of teaching and learning richer” (Ely, 1997 cited by Henriques, 2010, p.30).

Under a perspective of inclusive education, one believes that it is urgent to generalize mandatory education in a hospital context, without any exceptions, as a “consequence of the formal recognition that, regardless of the type and period of hospitalization, citizens have the right to education” (Figueiredo & Cardoso , 2013b, p.173) and the child/youth must benefit for it to overcome their educational needs, while enjoying their right to learn in a situation in which the child/youth is already hampered by the lack of health and well-being, because with the existing innovations in ICT and teacher training, all arguments that strengthen today’s barriers are exhausted.

References:

- Belchior, M. et al. (1993). *As Novas Tecnologias de Informação no 1.º ciclo do Ensino Básico*. Lisbon: Cabinet of Studies and Planning of the Ministry of Education.
- Canário, R., Alves, N., & Rolo, C. (2001). *Escola e Exclusão Social*. Lisboa: Educa – Instituto de Inovação Educacional.
- Carvalho, A. (2007). Rentabilizar a Internet no Ensino Básico e Secundário: dos recursos e Ferramentas Online aos LMS. *Sísifo. Revista de Ciências da Educação*, 03, 25-40.
- Constituição da República Portuguesa. (2002), Coimbra: Almedina.
- Direção-Geral de Inovação e Desenvolvimento Curricular. (2007). *Normas orientadoras para os Centros de Recursos TIC para a Educação Especial*. Ministry of Education. Lisbon
- Duarte, J., Marques, T., Tomás, A., & Pereira, M. (2002). As TIC nos primeiros anos de escolaridade. In J. P. Ponte, *A Formação para a Integração das TIC na Educação Pré-escolar e no 1º Ciclo do Ensino Básico* (pp. 40-48). Porto: Porto Editora.
- Figueiredo, J. S. S. & Cardoso, S. M. C. F (2013a). Educação Inclusiva: Uma integração de abordagens entre Portugal e Cabo Verde. In *Atas do I Colóquio Cabo-Verdiano de Educação... Nas Pegadas das Reformas Educativas*. Praia: Edições Uni-CV.
- Figueiredo, J. S. S. & Cardoso, S. M. C. F (2013b). Há Escola no Hospital: Contributos para um novo modelo de intervenção educativa. In *Atas do I Colóquio Cabo-Verdiano de Educação... Nas Pegadas das Reformas Educativas*. Praia: Edições Uni-CV.

- Fundação Portugal Telecom, Ministério da Educação (2006). Protocolo de colaboração –Projeto Astro. Lisbon.
- Henriques, I. (2010). *Avaliação do impacto de um software educativo na aprendizagem de uma criança com Necessidades Educativas Especiais* (Tese de Mestrado não publicada). Universidade de Aveiro, Aveiro, Portugal.
- Machado, J. (1992). Porquê as Tecnologias da Informação e Comunicação nas Ciências? In *Informática e Educação*, nº 3. Braga: Projecto MINERVA. Ministério da Ciência e Tecnologia. (1997). *Missão para a Sociedade da Informação - Livro Verde para a Sociedade da Informação em Portugal*. Lisbon.
- Ministry of Education and Science, Law no. 46/86, approving the Law on the Education System (Lei de Bases do Sistema Educativo).
- Ministry of Education and Science, Decree-law no. 3 of 2008, DR: I Series, no. 4 of 7th January, 2008, 154-164.
- Ministry of Education and Science, Order no. 1/2006, of 16th December, 2005.
- Oliveira, E. & Fisher, J. (2007). Tecnologia na Aprendizagem: A Informática como Alternativa no processo de Ensino. *Revista De Divulgação Técnico-Científica Do Icpq*. Vol. 3, N.º 10, Jan.-Jun./2007.
- Ponte, J. (1996). *O computador – um instrumento da educação*. Lisboa: Texto Editora.
- Quivy R. & Campenhoudt, V. (1998). *Manual de investigação em Ciências Sociais- Trajetos*. Lisbon: Gradiva.
- Santos, B. (2005). *Ciberleitura, o contributo das TIC para a leitura no ICEB* (Tese de mestrado não publicada). Faculdade de Ciências Sociais e Humanas, Universidade Nova de Lisboa, Lisbon, Portugal.
- Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage
- UNESCO (1989). *Convenção sobre os Direitos da Criança*. Nova Iorque: UNESCO.
- UNESCO (1989). *Lei de Bases da Prevenção e da Reabilitação e Integração das Pessoas com Deficiência*. Portugal: UNESCO.
- UNESCO (1990). *Declaração Mundial sobre Educação para Todos e plano de ação para satisfazer as necessidades básicas de aprendizagem*. Conferência Mundial Sobre Educação para Todos. Tailândia: UNESCO.
- UNESCO (1994). *Declaração de Salamanca - Sobre princípios, políticas e práticas na área das necessidades educativas especiais*. Paris: UNESCO.
- Yin, R. (2001). *Estudo de Caso: planejamento e Métodos*. Porto Alegre. Br. Bookman.
- Zulian, M. S.; Freitas, S. N. (2001). Formação de professores na educação inclusiva: aprendendo a viver, criar, pensar e ensinar de outro modo. *Cadernos de educação especial*. Santa Maria, v.2, n.18. p. 47-57.