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# Teaching practices and the use of technology in the Semear Hospital Class[1]

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**ABSTRACT**

This paper addresses the teaching practice and the use of technology in the daily life of the Semear Hospital Class, anchored in an investigation that aimed to understand the training processes and the insertion of technology in this environment. The research was developed through a qualitative case study. As a source of data, the observation of the teachers' collective work environment, interviews and document analysis were considered. The results obtained revealed that everyday school situations offer favorable contexts in promoting the learning of students/patients, the zeal beyond the right to education, as well as the humanization of the hospital in contact with the educational possibilities of the child victim of some type of pathology, being a motivational factor for teaching work. The data also pointed to the need for investment in continuing education actions, in order that teaching proposals applicable to the process become effective in school practice.

**KEYWORDS**: Hospital school. Education. Technology.

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*Práticas docente e o uso da tecnologia na Classe Hospitalar Semear*

**RESUMO**

Este artigo aborda a prática docente e o uso da tecnologia no cotidiano da Classe Hospitalar Semear, ancorado numa investigação que objetivou compreender os processos formativos e a inclusão da tecnologia nesse ambiente. A presente pesquisa é um estudo de caso de natureza qualitativa, em que se considerou a observação dos espaços-tempos coletivos dos docentes, entrevistas e análises de documentos como fonte de dados. A mediação pedagógica com apoio das Tecnologias da Informação e Comunicação (TICs) na Semear, permitiu perceber a individualidade dos sujeitos envolvidos, respeitando os aspectos emocionais e afetivos, geradores de desenvolvimento cognitivo destes pacientes/estudantes, a partir de uma abordagem sistémica e multidimensional valorizando as relações do processo educativo. O uso da tecnologia em confluência com mediação pedagógica adequada a essa modalidade de ensino possibilita a construção do conhecimento de forma lúdica, prazerosa e divertida, associada às dinâmicas de socialização que são indispensáveis a esse ambiente pedagógico.

**PALAVRAS-CHAVE:** Classe hospitalar. Educação. Tecnologia.

*Prácticas de enseñanza y el uso de tecnología en la clase Hospitalaria Semear*

**RESUMEN**

Este artículo aborda la práctica docente y el uso de la tecnología en la vida diaria de la Clase Semear Hospitalaria, anclada en una investigación con el objetivo comprender los procesos de capacitación y la inclusión de la tecnología en este entorno. La presente investigación es un estudio de caso cualitativo. La observación de los espacios-tiempo colectivos de los docentes, las entrevistas y el análisis de documentos se consideraron como una fuente de datos. La mediación pedagógica con el apoyo de las TIC en Semear, permitió percibir la individualidad de los sujetos involucrados, respetando los aspectos emocionales y afectivos, que generan el desarrollo cognitivo de estos pacientes/estudiantes, desde enfoques sistémicos y multidimensionales, valorando las relaciones del

proceso educativo. El uso de tecnologías con mediación pedagógica apropiada para este tipo de enseñanza permite la construcción del conocimiento de una manera lúdica, placentera y divertida asociada con la dinámica de socialización, indispensable para este entorno pedagógico.
**PALABRAS CLAVE**: Clase hospitalaria. Educación. Tecnología.

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## Introduction

Inclusive Education is an important path to achieve diversity, by building a school in the present, with a pedagogical proposal that meets the needs of the students, particularly those that are in risk of exclusion in terms of learning and participation in the school context. In face of the pandemic we are living these days with the outburst of coronavirus (COVID-19), schools and universities are adjusting their teaching methodologies focusing on technologies to adapt teaching and learning as a way to include and repair eventual damages to students. A reality in regular classrooms, these technologies are also present in inclusive and special classes. It's important to highlight that the number of studies that show ITC integration in the hospital educational environment and its applications as a supporting tool for the production of knowledge in this environment is still scarce.

A challenge in the hospital environment, according to Barros and Santos (2008, p. 134), teachers entering the reality of a hospital classroom that don't fit the profile and are not properly trained is a factor that can negatively influence their permanence in this scenario, or even the improvement of their performance. The presence of the ITCs in the classroom brings with them an immense number of possibilities and opportunities. With the great number of information available, their use is an invitation for the construction of new practices without renouncing the ethics of humanistic relationships experienced in the pedagogical context of the hospital class.

> In this new technological reality, the time for education is the time of life. Schools will not only be available to the restrict segments of students from specific age groups, social and educational levels. Educational offers for students of all ages and levels will be needed. Educational solutions for people who are temporarily (due to diseases, for example), or permanently (homeless, bearing chronicle diseases, etc.) apart from school buildings must also be presented (KENSKI, 2014, p. 124).

Hospitals humanizing aptitude tend to contribute with the educational intervention. Besides, the partnership between educational and health institutions provides articulation among the professionals involved in the student/patient inclusion. Thus, the use of technologies in the school environment is bringing transformation and impacting the teaching praxis. Enterprises such as Positivo and SAE Digital offer technological support such as the alphabet educational table, interfering since the necessary physical structure, to the materials and the didactic resources employed, with the teacher having an essential role in the development of skills and abilities that are indispensable to the new generation students. Therefore, one can infer that the inclusion of the technological and digital world in the pedagogical environment of the hospital is also an issue of civic duty.

In face of the rapid growth of the internet and the peak of mobile technologies associated to *smartphones* and *tablets*, the experiences created from the use of ICTs may lead to new educational proposals, making accessible to students and professors a collection of content and tools of immeasurable value for teaching and learning in all fields of knowledge. This leads to a unique process for the development of the self in the physical, cognitive, social and moral fields, enabling their social inclusion and contributing with the promotion of a critical self, able to think, question and make decisions.

Based on that, we highlight the review of pedagogical models that must include in the initial teaching qualification concepts, methods and techniques that prepare them to this new challenge. According to Pozo

(2005, p.39), teaching has been, traditionally, a shield for acquiring and changing behaviors. In this sense, learning correlates to behaviors that are forged in parallel with the acquisition of knowledge.

> The velocity of technological innovations not always match professors qualifications regarding their use and application, which many times leads to an improper use or to a lack of production in face of the technological resources available, [...] (SERAFIM, et al., 2011, p. 24).

The National Institute of Studies and Educational Research Anísio Teixeira (INEP) reveals, from their microdata (BRASIL, 2018), that the rate of enrollments in the country's hospitals have increased between 2013 and 2017. In 2017 alone, enrollments in hospital environments were adding up to 20.6 thousand from a total of 54 million enrolled in all levels of basic education - from childhood education to high-school and technical education, including Young Adult Education.

The use of technological innovations in the pedagogical praxis is the element of study of this research in the Semear Hospital Class, where the inclusion of technology and its practical adjustments are learned in the hospital class daily routine. The study becomes relevant in light of the expectation of growth in pedagogical practices at hospital environments, most notably in Pernambuco, where there is only one of these institutions working.

## Challenges of teaching when using technology

By opting to use these technologies, teachers must be aware of the outcomes they can achieve, mediating their path throughout the uncountable possible trajectories while always focusing on the interests of learning, capable of providing new experiences and challenges to their students.

> The use of new technologies in education doesn't necessarily imply the promotion of new educational practices, since we can, in some sense, sew new clothes with old fabric; teachers will have to focus on awakening their students, making them

> aware of their surroundings and prepared for new situations, imminent or not, thus becoming adapted to the modern times (PEDROSA and LUIZ, 2017, p. 157).

It's necessary to understand the challenges teachers are facing, on matters of perception, when receiving a student/patient in a hospital environment, as they experience a reality that, for them, it's different from the one in their school of origin: forged, many times, in a past that didn't even had computers. In this pedagogical action, the teacher is stimulated to learn and develop, at the same time, knowledge related to the ITCs and to the working process of this environment, trying to understand as soon as possible the new conditions that the development of this knowledge demands and how to adapt to a context that requires resources, time, practice and experience.

In light of these ideas, Hernandez (1998, p. 42) analyses experiences from teaching qualifications, defending that they must be applied in the daily practices of a school routine as the desirable path in order to strengthen the school, where learning happens through practice and gives teaching a real meaning. Maybe a computer is not yet part of the teachers' routine outside the school environment, but it is a part of the reality in the school they work. For Almeida (2005, p.40), in our daily lives, we make use of processes and tools in such a natural manner that we don't realize anymore how they are part of distinct technologies present in our lives, already incorporated in our habits.

Eventually, it can still be a motive of embarrassment for a teacher to lack skills when using new technologies that, a lot of times, are already mastered by the students. This seems to be another bond in the new student/teacher relationship. Sampaio e Leite (1999, p. 15) point out the need for a teacher's "technological literacy teaching", whereas technologies are also a part of people's daily lives and are under constant development. The technological apparatus represents a big innovation in education when its use, intermingled with pedagogical objectives, favors

the development of collaborative productions, developing the investigation spirit both in students and teachers.

> In the mark of the teaching and learning processes, the ITCs mediating capacity may be developed, in a first approach, basically towards two directions: Firstly, ITCs may mediate relationship among participants - mainly students, but also teachers - and the learning content. Secondly, ITCs may mediate interactions and communication exchanges among participants, either between teachers and students, either among students themselves (COLL, MAURI and ONUBIA, 2010, p. 76).

There are several educational software that can make learning a more effective process. To do so, it is necessary for teachers to have autonomy in order to expand their students' horizons and knowledge, giving them freedom to properly plan the teaching process. As an example, the playfulness in the virtual environment can restore the childhood routine, making the hospital environment less distressing, promoting humanization in the pedagogical and hospital relationship, minimizing the latter, which ceases to be a space only for clinic procedures to become a pedagogical space of inclusion with technology and learning.

An important step to change and/or shift the paradigm in education depends basically on the good qualification of the teacher:

> Good teachers are the key for educational change. Many start to teach without a proper qualification, mainly from the pedagogical point of view. They know the content, but don't know how to manage a classroom, how to motivate different students, which dynamics to use to facilitate the learning process, how to evaluate the teaching-learning process, besides the traditional evaluations (MORAN, 2007, p. 18).

In this sense, any environment must enable learning strategies in order to adapt to the higher possible number of individuals, starting at the role of the teachers, their conceptions and references of education that guide their educational actions, sometimes going their own way, changing due to factors such as interest, knowledge of content, structure, motivation, health,

among others. For the school to achieve its objectives also in this field, it's necessary to have technological resources or qualified teachers allied with pedagogical projects that lead to a more efficient action in the school environment, a combined effort of the school as a whole, in the sense of changing the way educators act to achieve a quality education.

It's important to highlight that the outcomes will be achieved not only by the insertion of new technologies, since they are not "saviors of the nation" for themselves. The good outcome depends much more on the participation of their actors along with the methodology applied, than on the use of any technological resource presented as innovation.

In this perspective, the school, the teacher and the social transformations adjusted to this new technological reality can be constructed based on actions in which the teacher must be ready and motivated to raise interest in learning along with the subjects involved in this process, providing the necessary interaction to new experiences and challenges.

> The educational relationship constitutes in a process, in which mediations are planned in a way to enable the learning process, but not all mediation produces effective outcomes, thus it's not enough to know the biological substrate of the human development in order to know the path of the species development (DE CARLO & BARTALOTTI, 2011, p. 108).

The role of the pedagogue for students/patients within school age that are hospitalized is very important, since the teaching and learning process also occurs in this environment that, even as a hospital environment, it's also a school and since they with their teaching practices for these students education.

According with Matos and Mugiatti (2014, p. 73), humans need to adapt to their needs, thus provoking a rupture and evolution to the paradigm that says that "school exists only in classrooms and hospitals are only for medical treatment". Therefore, the hospital pedagogue

becomes an agent of transformation, of an evolution to a new context that enhances the hospital care.

In the hospital environment, the educational aspect brings a desire for changing, for inclusion, since in a world transformed by technology more than ever, education must be grounded on the search for inventive and creative students and teachers, capable to advocate for a better society (BRANDÃO, 2002, p.4).

It's no longer possible to ignore the fact that technology has transformed daily routines and that teachers and students, by using technology, should not be restricted to passive participations, but must know how to use them, incorporating them in the search and development of new knowledge.

For that reason, a learning environment can be very rich; however, if students don't develop activities to achieve their potential, nothing will happen (GALVIS, 1992, p. 52). In this sense, the learning environment becomes a space that enables the construction of activities to be carried out by the student and, with a good planning, must guide the pedagogical action so it can be effective.

> Teachers must interact with students, know how to use the ITCs and get the best of them, especially to ensure to their students the knowledge that will lead them to be better citizens with skills and abilities to participate in the digital society processes (OLIVEIRA, 2007, p.16).

Technology is ever more present in our daily lives, lacking only that we learn how to make better use of it, getting all the possible pedagogical advantages of this tool. We realize also that there are an increasing number of adepts to its inclusion in order to speed the teaching activity, establish a close communication with parents and to motivate students in the classrooms.

A challenge that sometimes is unexpected in this process is the resistance of teachers to put such resources into practice. Maybe due to the way these resources are presented to them, maybe due to lack of

training and conviction regarding the benefits that technology can bring to a classroom, a discussion with peers becomes necessary, while also analyzing every strategy to apply ITCs in the educational environment as a mediator of knowledge.

> This school education, however, allied with the government power, holds to itself the power to define and organize the content that is considerable to be socially valid so people can perform specific professions or achieve deeper understanding in a specific field of knowledge. [...] On the other hand, the relationship between the knowledge to be taught, the teachers' powers and how the available technology will be explored to ensure a better learning process for the students will once again be defined by the teachers' actions in classrooms and the use of the technological support available at their disposal (KENSKI, 2014, p. 19).

The school has to be aware of the needs of the student of today, who interact with content in a more participative manner. For any interaction to take place, these students that interact with others, create and always face new challenges, will need more than just knowledge and willpower, but also compliance to values and behaviors that lead to educational-related habits.

In order to do so, teachers' will have to develop a pedagogical proposal indicated for each student, according to their needs, interchanging academic and experience knowledge, in a dialectic dynamic of its educational praxis, which becomes even more challenging due to the fact that it is a daily activity with multi/inter/transdisciplinary experiences taking place in a hospital environment.

> The technological evolution is not restricted to new uses of specific equipment and products. It alters behaviors. The expansion and trivialization of the use of a specific technology is imposed to the existing culture and transforms not only the individual behavior, but the behavior of the social group as a whole (KENSKI, 2014, p. 21).

The child's motivation to use ITCs unravels like a current and necessary practice, promoting a new attitude starting at the enhancement of well-planned pedagogical actions, acting in cooperation, where education

can be applied in the several contexts of relationships and interrelationships of the subjects in the educational process.

This educational process correlates to a vast number of places and/or environments, where its subjects are in an ongoing learning exercise, and the education is, outside of the school walls, as it is in a hospital classroom or a regular school, in favor of the students' interests.

> Education and Health constitutes an epistemological field of relevance to the quality of life and civic rights in the human and social parameters. It's necessary to reflect upon this field, on its dimensions and connections, once that the origin and final purpose of all knowledge, by standard, is to address *human existence* (MORENO, 2015, p. 86).

For Vygotsky (2002, p. 32), throughout the human development, the reasons for it to change are related to the interactions that take place between the subject and society, culture and life stories, along with the learning opportunities:

> The development of the human subject takes place in the constant interactions with the social environment he is a part of, since the most sophisticated psychological forms emerge from social life. Thus, the development of human psyche is always measured by others (other people from the cultural group), which indicates, underlines and assigns meaning to reality. (VYGOTSKY, 2002, p. 32).

Technologies emerge like a reality where teachers can use them to their favor. Using technological tools in the hospital pedagogical work offers new possibilities of tasks by using sound, image, writings and other possibilities of interaction, integrating the student/patient with the various technological resources.

> Information technology and communication are no longer perceived like a simple modern instructional resource and acquire the status of a fact that generates/promotes a new pedagogy: centered in the student, orchestrated by teachers and competent administrators, capable of promoting an interaction that breaks down the physical limitations of the classroom and

> contributes with the formation of the critical, participative, sympathetic and responsible citizen (NEVES, 2005, p. 21).

Thus, we have to forget the future to access the future, in other words, it's no use to prepare students for an unknown tomorrow if the present, for itself, is already a great challenge to be overcome (ALMEIDA, 2002, p.2), where ITCs as auxiliary tools for the pedagogical activities, both in regular classrooms and also in the hospital context, can enable the education of children and adolescents, with teachers alert to understand which resource will have a better outcome, and which software will better help their students to develop their activities by creating learning opportunities.

> [...] students gain autonomy in their tasks, being able to develop a large part of activities alone and according to their personal characteristics, promoting the individualized learning process more clearly (TAJRA, 2000, p. 45).

However, for these activities to be successful and meet the educational expectations, more than the resources made available, teachers will need to receive a proper training to better perform in such proposed activities.

## The methodology in the use of technologies in Semear

The research presents a qualitative approach, carried out in the Semear Hospital Class, implemented by Recife's City Hall, in 2015 at the Pediatric Oncohematology Center/CEONHPE of the University Hospital Oswaldo Cruz/HUOC, through a partnership with the Support Group for Underserved Children with Cancer/GAC-PE, an integral part of our PhD dissertation.

According to Minayo (2016, p. 22), a research seeks to answer specific questions, working with the universe of meanings, motives, aspirations, beliefs, values, and attitudes regarding a deeper place in relationships, processes and phenomenon that can't be reduced to a simple operation of variables.

The discussion on teacher formation in the hospital class opens a space to be filled regarding the pedagogical action to be developed in the hospital, enabling the creation of public policies related to the qualification of these teachers, both in their initial and their continuous formation.

As a result, according to Martinelli (1999, p. 21), the mentioned approach indicates possibilities regarding the presentation of more than indexes, medians, descriptions, the search for interpretations, more than the collection of information, by seeking the involvement of subjects and their stories.

By trying to better understand the elements used in the research, the data was processed qualitatively, a review of the literature and a single case study were performed, with the Semear Hospital Class as the *locus*, in accordance and harmony with the proposed topic.

For Martins (2008, p. 9), the case study is offered as a method often used in qualitative research, developing in a natural context, rich in descriptive data, focusing reality in a complex and contextualized manner, promoting an increase in understanding and awareness of the events to be studied.

Regarding the procedure of collecting data and its analysis, we resorted to the semi-structured interview, followed by its textual analysis from the analysis of the messages, its language, discourse, among others, which, according with Moraes (2003, p. 191), description and interpretation are elements conceived together, as part of the effort to clarify the understanding of a specific phenomenon.

Complementing this idea, the semi-structured interview:

> [...] favors not only the description of social phenomenon, but also its explanation and understanding of its totality, besides maintaining the researcher as a conscious and active presence in the process of collecting information (TRIVIÑOS, 1987, p. 152).

The technologies are present in the school space in at least three sectors of this environment, either in administrative issues, such as

students' registration; in creating the school curriculum, classes, and exams, and, in practices inside the classroom. Because of that, teachers need to understand the use of technologies, not as a threat to their methods of teaching, but as an ally in promoting learning experiences, whereas the teacher is the one who is in control of the content and the student is the subject that builds the path to assimilate it.

For Sousa (2010, p. 90), the teacher must seek new ways to help students, stimulating their interest, challenging them, leading them to debates and to action-reflection learning, assisting them to discover the meaning and context of the approached content. The pedagogical practice will be established between school contents and the reality experienced in the hospital environment, and the mediation between teaching and learning.

The Semear Hospital Class promotes the education of boys and girls in cancer treatment, and among their common pedagogical material, between books and notebooks, it innovates by adding alphabet educational tables, games, technologies, tablets, educational software, everything that is present in a regular school, so that they can continue their learning experience during their treatment with all the available resources.

It's easy to observe that in a hospital environment, one of the most unique fields that draws a lot of attention is the pediatric field, even more so as an Oncologic Pediatric sector, where the frailty of these children lead us to believe in the value of extraordinary actions and services towards these students/patients.

> In regard to learning in an unusual situation, as it is in the hospital context, the possibilities of learning in virtual environments need to be explored in order to contribute with the development of hospital schools (TORRES; MATOS; BORTOLOZZI, 2014, p. 205).

The understanding of the pedagogical praxis and functioning of these technological tools in the several spaces of knowledge dissemination, along

with their infinite resources, is the first step towards their real use, allowing for the subjects of this action to advance beyond what they had already achieved intuitively when getting in contact with these tools.

> What matters today in a pediatric hospital is the educational and bio-psycho-social-cultural well-being of their clients as well as of all the actors involved. All professions and administrative actions must have this same goal (RODACOSKI; FORTE, 2014, p. 63).

In this sense, the pedagogical support in service of hospitalization must generate a better improvement of the student/patient lives, motivating their recovery through a pedagogical assistance that values the self.

As a 6th grade student narrates, *"I'm grateful that, with the hospital classes, I've found the support and focus to study. When the disease was discovered, in August, 2015, I immediately thought about my studies. Thank God I'm being treated and having my classes still today".* Teachers and all the staff need to be prepared and qualified to manage these hospital classes.

It's important to understand not only the aspects related to the use of ITCs, such as the knowledge of tools, their potential, the knowledge to carry out the pedagogic activity mediated by these technologies, but also emotional aspects that permeate the relationship among subjects involved in this environment still under exploration.

In this context, the pedagogical intervention through technological tools made available in the hospital classes can assist these students/patients in regard to their hope, the resignification of their values, and potentially interrupted dreams due to their hospitalization, thus strengthening the bond with education and the consequential socialization and insertion in a world that is such an adversary to them.

According with the perception of teachers in these classes, these resources are very important: "*Today we use tablets, educational tables, and laptops that help us through the learning process, and that many times are taken into the beds of hospitalized children, who can't attend their regular classrooms."*

To better assist in the didactic activities, pedagogical toys were made available along with reading kits and a color printer. *"All to bring more color to the lives of these children",* as stated by one person on the staff. It's important to highlight that this initiative is supported by a decree and normative instruction that defines and regulates this job.

Notwithstanding the insertion of students with educational needs in the classroom, particularly hospital classrooms, it will be necessary to offer better conditions for the operation of this inclusive pedagogical project, crucial to the continuous qualification of teachers and their role in this new telematic environment of multiple variables, where the technology and the teacher present themselves as mediators of the teaching and learning process.

**PICTURE 1:** Image of an alphabet educational table

**Source:** Authors collection (2020).

According to a teacher, the class use these technologies, "*as support material such as the electronic educational tables, which works with the literacy teaching and learning process, tablets and computers with purpose to carry out research, seek interactive media besides those that come within the equipment, accessing videos and websites with pedagogical activities from all fields of knowledge".*

In the electronic alphabet educational table it's possible to work with all fields of activities that support the literacy process, making it possible to identify each letter of a word by its sound. The table has educational software and hardware elements in a collaborative space, allowing the development of cognitive skills.

According with the class teachers: *"The table contemplates specific programs related to reading and writing skills, while also approaching work related to mental skills, using mathematical concepts, with numbers and operations, space and forms, magnitude and measure, among others."*

The use of technologies stimulates students and teachers to build knowledge and understand how they can interact with the different sectors of society, favoring the teaching and learning process by working the various contents from the school subjects, reducing the lack of focus when they start to think in a more intuitive and logical manner with these tools that are shown to be a viable path in overcoming the passive model of acquiring information, and become a facilitating instrument for a more reflexive, collaborative and critical teaching and learning process.

For one the class teachers "*the choice of educational computer programs (software) must be carefully taken, and must comply not only with the concepts and conceptions established in the planned curriculum, but also with a program that takes the teachers qualification into consideration",* which, in the vision of Tajra (2007, p. 122), teachers must be qualified, need to be qualified and are the cornerstone for the success of implementing these resources in the educational environment.

Classes take the clinic guidelines into consideration, which indicates the activity availability while also considering the patients level of mobility. If needed, patients will be met in their own hospital beds. The didactic organization takes the working hours usually demanded in regular schools less into consideration and prioritizes content and activities that integrate the fields of knowledge and the pedagogical-ludic situations.

According with the Class Teacher: "*Teachers develop activities along with children and adolescents, while following the school planning and content idealized by the students' school of origin or developed along with the City Hall of each city. Thus, each student has a portfolio, with information on the performed activities and cognitive development and, from the documentations and written exams sent by the schools of origin, students are evaluated.*"

The hospital teaching modality is presented by a flexible organization of its activities, contents and curricular adaptations, where:

> The complexity in constructing knowledge in all segments, in teaching in this context, presumes communication, partnership, challenges, autonomy and good citizen practices. To educate for the exercise of civic duty means to take paths unknown, promoting understanding and social and existential perspectives (MUTTI, 2016, p. 132).

In the words of a teacher *"The use of these technological equipment is indispensable for students/patients who are in the hospital environment, particularly when they have, for example, an "IV catheter" (invasive process, to administrate fluids continuously) on their writing hand, preventing the use of pencils and paper.*

In this sense, technologies in education, specially inclusive education, such as scientific knowledge, bring techniques and instruments that collaborate with the teaching and learning process of students with special educational needs, favoring the individualization of the pedagogical support in irregular spaces of learning, or for groups of students that present levels of cognitive development and several specific learning necessities, common to the hospital classes.

**PICTURE 2:** Image of a Hospital Class

**Source:** Authors collection (2019).

Most recently, the Semear Class introduced the use of robotics materials and *Lego* in a contextualized manner, with pedagogical objectives, attributing meaning to knowledge. Upon request, the humanoid robot "NAO" (technological innovation from the City Hall of Recife) is another tool allied to the teaching practices and the pedagogical project.

> The teaching action measured by technologies is a shared action. It no longer depends solely on a single teacher, isolated in their classroom, but on the interactions that were possible for the development of the teaching context. Students, teachers and technologies integrating with the same objective generate a movement of discoveries and learning experiences (KENSKI, 2014, p. 105).

Students/patients, either children or adolescents, are immersed in this world filled with information, with technological innovations, where teachers can't exclude themselves in face of these technological opportunities.

> Multiple methods and perspectives define and establish a hierarchy regarding the attitudes of the teacher. Experimental, comparative, historical and theoretical studies provide, and have been providing inventories of tasks, functions, profiles that somehow imply in clear

> professional attitudes, trying to analyze how teachers are capable of identifying difficulties (RODRIGUES, 2012, p. 38).

In a critical manner and allied to the practices of teaching, the digital resources will be a part of the school environment, creatively enhancing the dynamics of the teaching-learning process, assisting teachers to awake the curiosity of students, developing relationships and socializing in a field that is multidisciplinary by essence, in the perspective of promoting benefits to actors, whether they are students/patients, staff, companions and visitors, but most specially the first ones who have their pedagogical needs contemplated.

## Conclusion

It's a great challenge to elaborate pedagogical strategies that work with technology in a hospital class environment, starting with the construction of an emotional and humanistic bond for patients and families that, not rarely, present emotional and/or psycho-affective disorders that can harm such process in the hospital space, upon the insertion of new technologies. However, this is a promising path in promoting learning experiences for students, while also being a motivational factor for the work of teachers, which was made evident by the ITCs' use dynamic.

The pedagogical mediation with support of the Semear ITCs allowed for a better understanding regarding the individuality of the subjects involved, respecting the emotional and affective aspects that promote cognitive development among these patients/students, from systematic and multidimensional approaches, valuing the relationships of the educational process.

It's worth noticing that, due to the fact that the Hospital Classroom has an ecology of its own in its daily pedagogical context, teachers need to plan classes considering the specificity of these teaching modalities, adapting the curriculum content sent by the origin school, as well as

defining the devices and technologies that will embody and give life to the learning process of each multigrade class student/patient, through adapted methodologies and strategies for the pedagogical work to be carried out in the hospital environment, both in the hospital bed and in the classroom.

Identification of teaching tools, their availability and offer for the teachers' qualification will provide a better qualitative performance for teachers and students throughout the pedagogical-didactic process. Classes will become lighter, more interactive and specific, favored by the attractiveness of the technological resources.

The Semear Hospital Class, considering the ideologies of a student/patient full-care hospital pedagogy, values a pedagogical work through ludic activities, making patient's condition lighter, taking their minds off the hospital reality, contributing with the intra and interpersonal relationships, not limited to the students' scholar education, but, through the multidisciplinary action, enabling the children to understand their hospital routine, in a way that their knowledge and emotions can be helpful to their learning process.

The use of technologies with the proper pedagogical mediation to this teaching modality enables the building of knowledge in a ludic, playful and fun manner, associated to the socializing dynamics, indispensable to the pedagogical environment. Overcoming the approach of traditional teaching, that favors memorization of content.

It's important to experience practical situations that enable students to use ITCs not only as auxiliary tools, but as a primary resource that fully leads them to knowledge, and in this sense, new technologies in school environments must define and promote a teaching environment, where learning can occur effectively.

The use of computers in the hospital classroom is highlighted as an important technological resource, promoting curriculum accessibility, ensuring the student/patient participation in the educational activities,

being used along with the methodological strategies, thus aiming at the development of skills that can be essential for students.

The Semear Class was very zealous, beyond the right to pedagogical care, humanizing the hospital and their individuals with the educational possibilities of children and other actors, through the effort of all the multidisciplinary staff in mediating knowledge and its dissemination, and involving the student/patient in the learning process.

## References

ALMEIDA, M. E. B. de. *Gestão Escolar e Tecnologias – Formação de gestores para o uso das Tecnologias da Informação e Comunicação*. São Paulo: Loyola, 2002.

ALMEIDA, M. E. B. de. Prática e formação de professores na integração de mídias. In: ALMEIDA, M. E. B. de & MORAN, J. M. (orgs). *Integração das tecnologias na educação. Salto para o futuro*. Secretaria de Educação a Distância: Brasília, Seed, 2005. p. 124-127.

BARROS, A. S. S.; SANTOS, R. M. *Percepções dos professores da educação especial acerca das crianças e adolescentes hospitalizados*. CONGRESSO BRASILEIRO DE EDUCAÇÃO ESPECIAL, 3., São Carlos, *Anais*..., 2008. Disponível em: <http://www.cerelepe.faced.ufba.br/arquivos/fotos/134/barrosemaltez.pdf>. Acesso em: 04 fev. 2020.

BRANDÃO, E. *Informática e educação: uma difícil aliança*. Passo Fundo: UPF, 1995.

BRASIL. *O Censo Escolar - Notas Estatísticas: Censo Escolar*. Brasília: INEP, Ministério da Educação, 2018. Disponível em: <https://download.inep.gov.br/educacao_basica/censo_escolar/notas_estatisticas/2018/notas_estatisticas_censo_escolar_2018.pdf>. Acesso em: 25 jan. 2021.

COLL, C.; MAURI, T.; ONRUBIA, J. A Incorporação das tecnologias da informação e da comunicação na educação: do projeto técnico-pedagógico às práticas de uso. In: Coll et al. *Psicologia da educação virtual: aprender e ensinar com as tecnologias da informação e da comunicação*. Porto Alegre: Artmed, 2010

DE CARLO, M. M. R. P.; BARTALOTTI, C. C. (orgs.) *Terapia Ocupacional no Brasil: fundamentos e perspectivas*. São Paulo: Plexus, 2001.

GALVIS, A. H. *Ingeniería de software educativo*. Santa Fé, Bogotá: Ediciones Uniandes, 1992.

HERNANDEZ, F. Um diálogo a partir da incerteza com três experiências de formação na escola. *Tessituras*, Caderno n. 1, PBH, SMED, 1998, p. 42-44.

KENSKI, *Educação e Tecnologias: O novo ritmo da informação*. 8ª. ed. 4ª reimpressão, Campinas, SP: Papirus, 2014.

MARTINELLI, M. Conversando sobre educação em valores humanos. 3ª edição. São Paulo: Petrópolis, 1999.

MARTINS, G. A. *Estudo de caso: uma reflexão sobre a aplicabilidade em pesquisas no Brasil*. Revista de Contabilidade e Organizações, v. 2, n. 2, p. 9-18, jan./abr., 2008.

MATOS, E. L. M.; MUGIATTI, M. T. F. *Pedagogia Hospitalar:* a humanização integrando a educação e saúde. 7 ed. – Petrópolis, RJ: Vozes, 2014.

MORAES, R. *Uma Tempestade de Luz*: a compreensão possibilitada pela análise textual discursiva. Ciência & Educação, São Paulo, v.9, n.2, p. 191 – 211, 2003.

MORAN, J. M. A *Educação que desejamos: novos desafios e como chegar lá*. Campinas, SP: Papirus Editora, 2007.

MUTTI, M. C. S. *Pedagogia hospitalar e formação docente***:** a arte de ensinar, amar e se encantar. Jundiaí: Paço Editorial, 2016.

MINAYO, M. C. de S. *et al*. *Pesquisa Social:* Teoria, Método e Criatividade. Petrópolis: Editora Vozes, 2016.

MORENO, L. V. A. Educação e Saúde: *a dignidade humana como fundamento da prática do docente em ambiência hospitalar*. 1ª edição. Curitiba: Appris, 2015.

NEVES, C. M. C. *A pedagogia da Autoria*. Boletim Técnico do SENAC, v.31, n.3, set./dez.2005.

OLIVEIRA, A. S. *Perspectivas para formação de professores na sociedade da informação*. In: MERCADO, Luis Paulo Leopoldo (org.). Percursos na Formação de Professores com Tecnologias da Informação e Comunicação na Educação (org.). Maceió: Edufal, 2007.

PEDROSA, E. M.; LUIZ, M. K. S. *A construção de uma prática educativa através da tecnologia*: um olhar para o ambiente hospitalar. EmRede - Revista de Educação a Distância. v. 4, n. 1, p. 155-65, 2017.

POZO, J. I. *Aquisição do conhecimento***:** quando a carne se faz verbo**.** Artmed, Porto Alegre, 2005.

RODACOSKI, G. C.; FORTE, L. T. *Prática pedagógica em complexo hospitalar*. In: MATOS, E. L. M. (Org.). Escolarização Hospitalar: educação e saúde de mãos dadas para humanizar. 4ª ed. Petropolis, RJ: Vozes, 2014.

SAMPAIO, M. N.; LEITE, L. S. *Alfabetização tecnológica do professor*. 2. ed. Petrópolis: Vozes, 1999.

SERAFIM, M. L.; SOUSA, R. P. *Multimídia na Educação*: o vídeo digital integrado ao contexto escolar. In: SOUSA, Robson P.; MOITA, Filomena M.; CARVALHO, Ana B. (Orgs.). Tecnologias digitais na educação. Campina Grande: Eduepb, 2011.

TAJRA, S. F. *Informática na educação***:** novas ferramentas para o professor na atualidade. 7ª ed. São Paulo: Érica, 2007.

SOUSA, Silvia Regina R. *Educação e as novas tecnologias da informação e comunicação*. Modulo IV do curso de Pedagogia em EAD, do Programa da Universidade Aberta do Brasil. Teresina-PI UFPI, 2010.

TORRES, P. L.; MATOS, E. L. M.; BORTOLOZZI, J. M. *Eureka@ Kids – Criatividade em contexto escolar e hospitalar*. In: MATOS, E. L. M. (Org.). Escolarização Hospitalar: educação e saúde de mãos dadas para humanizar. 4ª ed. Petropolis, RJ: Vozes, 2014.

TRIVIÑOS, A. N. S. *Introdução à pesquisa em ciências sociais:* a pesquisa qualitativa em educação. São Paulo: Atlas, 1987.

VYGOTSKY, L. *A formação social da mente.* 6. ed. São Paulo: Martins Fontes, 2002.

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