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SCHOOL MANAGEMENT AND ACCESSIBILITY TECHNOLOGIES FOR STUDENTS SPECIALS IN ELEMENTARY EDUCATION[1]

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SUMMARY

This scientific article, which has as its theme information and communication technologies and their contributions to the inclusion of people with disabilities in elementary education, aims to contribute and at the same time inform the reader about the current Brazilian political panorama with regard to the education of people with disabilities and their inclusion in the school environment. This is due to the fact that in our country many of these rights have been violated by public authorities who have done nothing or are doing nothing to change the scenario of abandonment that our young people and adults encounter on the way to having a bit of respect and citizenship. In this context, it is inconceivable that in our country, in the era of instant communication and digital technologies, breaking physical barriers and surpassing the frontiers of knowledge, attention has not yet been paid to the issue of people with disabilities, as such technological resources can help them by facilitating work. of the teacher in the classroom who is often unprepared to deal with special students, as they can optimize the teaching-learning process for those with special needs, contributing satisfactorily to their academic performance.

Keywords: Human Rights, Inclusive Education, School Management, Technology.

ABSTRACT

This scientific paper which is the theme of information and communication technologies and their contributions to the inclusion of people with disabilities in fundamental education, and aims to contribute both inform the reader about the current Brazilian political landscape in terms of education with disabilities and their integration into the school environment, since in our country many of these rights have been violated by the government did nothing to change or make the scenario of abandonment that our young people and adults find the way to have a little respect and citizenship. In this context it is inconceivable that in our country in the era of instant communication and digital technologies, breaking physical barriers the frontiers of knowledge, not yet looked at the issue of disabled people, such as technological resources can help them facilitate the work of Classroom teacher that is often unprepared to deal with special students, because it can optimize the process of teaching and learning of people with disabilities, contributing to the satisfaction of Their school performance.

Keywords: Human Rights; Including Education;School Management;Technology.

INTRODUCTION

Currently, there is a moment of great relevance in the Brazilian educational field, since great technological inventions increasingly require trained professionals to adapt to such transformations that have occurred.

From this perspective, the search for strategies to make Information and Communication Technologies (ICTs) more accessible has been a major challenge for professionals, especially in education, with the priority being to promote inclusion and access for all people.,regardless of their physical and cognitive limitations.

ICTs are all around us, strengthening our relationship with the world, breaking barriers and shortening distances, therefore, it is inconceivable not to use such resources as a form of social inclusion, especially for those who need it to fit into this technological field that we all do. part, so any individual regardless of their socio-economic situation can use it as a way of communicating with the world, being part of this great global village.

Given the above, in the inclusion process, it is necessary to analyze the possibilities of using ICTs in the teaching-learning process, as well as the role of the pedagogical manager preparing the school for the diversity.

Therefore, this article intends to analyze and reflect on inclusion policies, taking into account the conceptual paradigms and principles that have been progressively defended in national and international documents.

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DEVELOPMENT

Reflections on the concept of Inclusion

Inclusion is a worldwide struggle for people with disabilities and their families in search of their rights and place in society.

But what is the concept of inclusion? What leads people to have such different understandings and meanings? It is worth making some reflections here, as this contributes to a less segregationist and prejudiced practice. The adjective “inclusive” is used when seeking quality for all people with or without disabilities.

At the first Conference of the Ibero-American Network of Non-governmental Organizations of People with Disabilities and their Families, held in Caracas, between the 14th and 18th of October 2002, considering that it is everyone's commitment to improve the quality of life of people with disability and their families through quality services in health, education, housing and work, declared 2004 as the “Year of People with Disabilities and their families” with the aim of aiming for the effective validity of the Norms on the Equalization of Opportunities for People with Disabilities and compliance with the agreements established in the Inter-American Convention on the Elimination of all Forms of Discrimination against Persons with Disabilities (2001 Guatemala Convention).

The term “inclusion” already brings with it the idea of exclusion, as it is only possible to include someone who has already been excluded. Inclusion is supported by the inclusion - exclusion dialectic, with the struggle of minorities to defend their rights.

When it comes to school inclusion, it is necessary to rethink the meaning that is being attributed to education, It is also necessary to change the paradigm of educational systems, in addition to updating our conceptions and giving new meaning to the process of building the entire individual, understanding the complexity and breadth that involves this theme.

School Management from the Perspective of Inclusion

Centuries ago, regular education establishments were considered educational spaces for students who necessarily fit into the standards of normality ideologically established by an exclusionary minority. According to analyzes by Dall'Acqua and Vitaliano (2010, p. 25) “the school has historically been organized to be indifferent to differences, with homogeneous and exclusionary practices that distance themselves from the proposals aimed at inclusive schools”, since this is intended to serve all students, without distinction in relation to human specificities.

According to the current inclusive educational process, it is up to regular schools to develop not only a new educational policy combined with an inclusive practice, but also the development of a new school culture, based on human rights, in particular, the rights of all students benefit from quality education, with the principle of equality as its basic assumption.

Gil (2005) analyzes these issues, and suggests that inclusive practices have as participants: the teacher, the family, pedagogical coordination and mainly government bodies. According to the author, if our objective is to transform regular schools into schools that serve everyone, without discrimination, it is necessary, as a priority, for everyone involved in the process to bear in mind that the objective of inclusive education is to promote the effective participation of all students in all school and community activities, regardless of their individual characteristics, and that everyone can make their contribution to the full development of this process.

It is in this context that the role of the school manager stands out, as he is the one who will contribute to the organizational structure of schools, aiming for transformation. Therefore, if we want a regular school that meets students' SEN, it is necessary to have a school manager who is committed to the proposal of inclusive education, willing to mobilize the entire school community regarding the issue in focus.

Lück (2009, p. 95), when characterizing the role of the pedagogical manager within the school context, analyzes that:

> Pedagogical management is, of all dimensions of school management, the most important, as it is most directly involved with the school's focus, which is to promote student learning and training, as previously pointed out. It constitutes the dimension to which all others converge, since

This refers to the main focus of teaching, which is the systematic and intentional action of promoting the training and learning of students, as a condition for them to develop the social and personal skills necessary for their profitable insertion into society and the world of work, in a reciprocal benefit relationship. Also so that they can fulfill themselves as human beings and have quality of life.

Taking into account the analyzes carried out, we believe that the pedagogical manager is one of the professionals who stands out in the inclusive educational context, as a result of the role he plays, as it is up to him to plan and organize the school, so that it meets the SEN of the students there. Therefore, it is essential that the pedagogical manager is aware of the importance of providing an inclusive school and of providing actions that make this proposal viable, even because everyone who makes up the school community will be mirrored in their actions.

According to the analyzes of the aforementioned authors in relation to the inclusive educational process, and the contributions of pedagogical management to the development of that process, we must consider that it is up to the pedagogical manager to: provide the material and human resources necessary for the development of the learning process of students with SEN; assist teachers in developing differentiated teaching methodologies and strategies that favor the inclusive educational process; enable, in the school context, moments of reflection regarding inclusive pedagogical practices, so that all participants in the aforementioned process can participate in defining objectives, planning, as well as in the elaboration of proposals and action plans that enable the break of barriers that are impeding the learning development of students with SEN.

Finally, in this sense, developing practices that favor the principle of Inclusive Education, motivating all participants to accept this process, contributing to teachers' practices to obtain an inclusive attitude, as well as the democratization of teaching, is an essential task for managers. pedagogical.

ICTs AND THEIR CONTRIBUTIONS TO THE INCLUSION OF SPECIAL STUDENTS IN ELEMENTARY EDUCATION

Information and Communication Technologies - ICTs and Assistive Technologies

For Vygotsky, the process of appropriation, by the individual, of the experiences present in their culture is extremely relevant to human development. The author highlights the importance of action, language and interactive processes in the construction of higher mental structures (VYGOTSKY, 1987). Access to the resources offered by society, school, technologies, etc., has a decisive influence on the person's learning absorption processes.

However, the difficulties of individuals with disabilities tend to become a barrier to this learning. Developing means of accessibility would be a concrete way to end the barriers caused by disability and insert this individual into environments conducive to learning, provided by culture.

Another difficulty that limiting interaction barriers bring with them are the prejudices to which individuals with disabilities are subject. Developing accessibility resources can also mean combating these prejudices, because, when they are offered the conditions to interact and learn, making their thoughts clear, the person with a disability will more easily be assisted as a “different equal”... In other words, , “different” due to their condition as a person with a disability, but at the same time “equal” because they interact, relate and compete in their environment with more powerful resources, provided by the accessibility adaptations available to them. It is seen as “equal”, therefore, to the extent that its “differences”, increasingly, are situated and resemble the intrinsic differences that exist between all human beings. This person will then be able to take greater steps towards the eradication of discrimination, as a consequence of the respect gained through coexistence, increasing their self-esteem, because they will now be able to explain better your potential as well as your thinking about things.

It is known that new Information and Communication Technologies - ICTs have increasingly become important instruments of our culture and, their use, a concrete resource for inclusion and interaction in the world (LEVY, 1999).

This reality is even more noticeable and true when we refer to people with disabilities. In these cases, ICTs can be used or**as**Assistive Technology, or through Assistive Technologies.

We use ICTs as Assistive Technology when the computer itself is the technical aid to achieve a certain objective. For example, the computer used as an electronic notebook, for

individual who cannot write in a regular paper notebook.

On the other hand, ICTs are used through Assistive Technologies, when the desired final objective is the use of the computer itself, for which certain technical aids are necessary to allow or facilitate this activity.

For example, keyboard and mouse adaptations, special application software, etc. Defining, Assistive Technology is any and all tools or resources used with the purpose of providing greater independence and autonomy to people with disabilities.

The objective of Assistive Technology is:

"Provide people with disabilities with greater independence, quality of life and social inclusion, through increased communication, mobility, control of their environment, learning skills, competition, work and integration with family, friends and society. "They can range from a pair of glasses or a simple cane to a complex computerized system." (http://www.clik.com.br/ta_01.html).

We want to talk about these "computerized systems", that is, the new ICTs used or as, or through Assistive Technologies, in teaching and learning processes. The different ways of using ICTs as Assistive Technology have been systematized and classified in the most varied ways, depending on the emphasis each researcher wants to give. We, here, chose to use a classification that divides this use into four areas (SANTAROSA, 1997):

- **ICTs as auxiliary systems or prostheses for communication.**
- **ICTs used to control the environment.**
- **ICTs as tools or learning environments.**
- **ICT as a means of insertion in the world of professional work.**

1. ICTs as auxiliary systems or prostheses for communication**,**This is perhaps the area where ICTs have enabled the most significant advances. In many cases, the use of these technologies has been the only way in which many people can communicate with the outside world, being able to express their desires and thoughts.

These technologies have enabled an improvement in the use of Alternative and Augmentative Communication Systems (SAAC), with the computerization of traditional alternative communication methods, such as Bliss, PCS or PIC systems, among others.

Fernando Cesar Capovilla, researching in the area of diagnosis, treatment and rehabilitation of people with communication and language problems, notes that:

"In Brazil we already have a considerable and rapidly growing collection of technological resources that allow us to improve the quality of interactions between researchers, clinicians, teachers, students and parents in the area of Special Education, as well as increasing the work performance of each one of them." (CAPOVILLA, 1997). 2. ICTs, such as Assistive Technology, are also used to control the environment, enabling people with motor impairment to remotely control household appliances, turn lights on and off, open and close doors, in short, have greater control and independence in activities everyday. 3. The difficulties of many people with special educational needs in their development and learning process have found effective help in the use of ICTs as a tool or learning environment. Different research has demonstrated the importance of these technologies in the process of building these students' knowledge (NIEE/UFRGS, NIED/UNICAMP, CRPD/OSID and others).

4. Finally, people with severe motor impairment have been able to become active and productive citizens, in many cases guaranteeing their livelihood, through the use of ICTs.

Often these four areas are related to each other, and a given person may be using ICTs for purposes present in two or more of these areas. This is the case, for example, of a person with communication and language problems who uses the computer as a communication prosthesis and, at the same time, as an electronic notebook or in other teaching-learning tasks.

Using Accessibility Resources in Special Education

Our specific interest here, due to the educational objectives of our work, is in the "Informatics in Special Education" Program of the Center for Rehabilitation and Prevention of Disabilities (CRPD), in Salvador-Bahia (http://infoesp.vila.bol.com .br), is to present in a little more detail some Assistive Technologies, some accessibility resources, used to achieve the purposes outlined in area 3, that is, ICTs as tools or learning environments, in Special and Inclusive Education.

As has been detected:

> "The importance of these technologies in the context of Special Education has already been highlighted as the part of education that is and will be most affected by the advances and applications that have been taking place in this area to meet specific needs, given the limitations of people in the mental sphere. , physical-sensory and motor with repercussions on socio-affective dimensions." (SANTAROSA, 1997).

In our educational work, therefore, we use adaptations with the aim of enabling interaction, on the computer, for students with different degrees of motor, sensory and/or communication and language impairment, in teaching-learning processes. These adaptations can be of different orders, such as:

"Special adaptations, such as a touch or blow sensitive screen, noise detector, mouse leveraging the part of the body that has voluntary movement and automatic scanning of items at adjustable speed, allow its use by virtually everyone with cerebral palsy, whatever their condition. the degree of their motor impairment (Capovilla, 1994)."(Magalhães, Leila NAPin http://www.c5.cl/ieinvestiga/actas/ribie98/111.html). We classify the accessibility features we use into three groups:

- **Physical adaptations or orthoses.**

These are all devices or adaptations fixed and used on the student's body and that facilitate their interaction with the computer.

- **Hardware adaptations.**

These are all devices or adaptations present in the physical components of the computer, in the peripherals, or even when the peripherals themselves, in their conception and construction, are special and adapted.

- **Special accessibility software.**

They are the logical components of ICTs when constructed as Assistive Technology. In other words, they are special computer programs that enable or facilitate the interaction of students with disabilities with the machine.

1 - Physical Adaptations or Orthoses

When we look for the correct posture for a student with a physical disability, in their adapted or wheelchair chair, using cushions, or bands to stabilize the trunk, or velcro, etc., before working on the computer, we are already using many physical resources or adaptations. often very effective in helping students' learning process. Correct posture is vital for efficient computer work.

Some students who have cerebral palsy have fluctuating muscle tone (athetoid), making the typing process slow and painful, due to the range of movement of the upper limbs when typing. One feature we use is the weight bracelet that helps reduce the range of movement caused by fluctuations in tone, making typing faster and more efficient. The weights on the bracelet can be added or decreased, depending on the student's size, age and strength. Student Elsimar, for example, uses the full capacity of weights on the bracelet due to the intensity of the fluctuation in his tone and also because his physical complexion allows it.

Weight Bracelet

Another orthosis we use is the wrist stabilizer and thumb abductor with tip for typing, for students, mainly with cerebral palsy, who have these needs (wrist stabilization and thumb abduction).

In addition to these physical adaptations and orthoses that we use, there are several others that can also be useful, depending on the specific needs of each student, such as head pointers, or rods fixed to the mouth or chin, when there is head control, among others.

2 - Hardware Adaptations

One of the simplest and most efficient means of adapting hardware is the keyboard mask (or honeycomb). It is a plastic or acrylic plate with a hole corresponding to each keyboard key, which is fixed on the keyboard, at a small distance from it, with the purpose of preventing the student with

Motor coordination difficulties involuntarily press more than one key at the same time. This student must look for the hole corresponding to the key they want to press.

Students with motor coordination difficulties associated with mental disabilities can also use the keyboard mask together with cardboard or cardboard "caps", which only show the keys that will be necessary for the work, depending on the software that will be used. In this way, the number of visual stimuli (many keys) will be reduced, which can make the work very difficult and confusing for some students, due to their difficulties in abstraction or concentration. Various caps can be built, providing different sets of keys, depending on the software that will be used.

Other simple adaptations that can be used concern the positioning of the hardware itself. An example of this is our student Mércio, who types using just one hand, at a certain stage of his work and with certain software that required him to press two keys simultaneously, he discovered that if he placed the keyboard on his lap in the chair wheels, he could also use his other hand to hold down a key (Ctrl key), while pressing the other key with the other hand.

Student Raimundo is now beginning to be able to use the mouse for small movements (combined use with a keyboard simulator) for the purpose of writing on the computer, placing the mouse positioned on his legs, on a book or a small board.

Another solution we use is to reposition the keyboard close to the floor for typing with our feet, a resource used by a student who cannot type with her hands. Therefore, several variations can be made in the positioning of the peripherals to facilitate the student's work, always, of course, depending on the specific needs of each student.

Keyboard Repositioned for Foot Typing

In addition to these hardware adaptations that we use, there are many others that can be found in specialized companies, such as special actuators, adapted mice, special keyboards, as well as special hardware such as Braille printers, monitors with touch screens, etc. (see other references at the end).

3. Special Accessibility Software

One of the most useful and easily available, but often still unknown, resources is the "**Accessibility Options**" in Windows (Start - Settings - Control Panel - Accessibility Options). Through this feature, several modifications can be made to the computer's configurations, adapting it to different student needs.

An example would be that of a student who, due to motor coordination difficulties, is unable to use the mouse, but can type on the keyboard (which happens very frequently), has the solution of configuring the computer, through the Accessibility Options, to that the numeric part on the right of the keyboard performs all the same commands on the mouse arrow that can be performed by the mouse.

In addition to the mouse, other settings can be made, such as "**Sticky Keys**", the option of "**High Contrast on Screen**" for people with low vision, and other options.

Another example of Special Accessibility Software are keyboard and mouse simulators. All keyboard options or mouse command and movement options can be displayed on the screen and selected, either directly, or through scanning that the program performs over all options.

For our students who have needs, we found Spanish technician Jordi Lagares' website on the Internet, where he makes several freeware programs developed by him available for download. We are talking about simulators that can be operated very simply, in addition to being very "light" software (less than 1 MB: address at the end). Through this keyboard simulator and mouse simulator, a student, for example, at the age of 37, he was able to start working on the computer and can now better express everything their cognitive potential, starting to learn to read and write. This student, who is quadriplegic, can only use the computer through these simulators, which allow him to transmit his commands to the computer only by blowing into a microphone. This has allowed him, for the first time in his life, to write, draw, play and carry out various activities that were previously impossible for him. He now starts trying to use the mouse on his legs for small movements. In other words, completely new horizons opened up to him, enabling his intelligence, previously imprisoned in an extremely limited body, to find new channels of expression and development.

Such simulators can be activated not only by blowing, but also by small noises or small voluntary movements made by different parts of the body, and even by blinking or just eye movement.

There are other websites on the internet that provide other simulators and special accessibility programs for free, such as the Rede Saci website.

As special software for communication, there are computerized versions of traditional alternative communication systems such as Bliss, PCS or PIC.

For people with visual impairments, there is software that "makes the computer talk": "Blind people can also use systems that read the screen and files through a speaker; special keyboards that have metal pins that rise up to form characters that are sensitive to touch and that "translate" the information that is on the screen or that is being typed and printers that print characters in Braille." (FREIRE, 2000).

For the blind there are programs such as DOSVOX, Virtual Vision, Bridge, Jaws and others.

It is important to highlight that the decision on the accessibility resources that will be used with students must be based on a detailed and individual study, with each student. It is necessary to start with a detailed analysis and in-depth listening to your needs, and from this point on, choose the resources that best respond to these needs.

CONCLUSION

In view of the discussion presented here, the changes are fundamental for inclusion, but they require effort from everyone, enabling the school to be seen as an environment for building knowledge, eliminating discrimination based on age and ability. To this end, education must have a broad and complex character, favoring the formation of the individual throughout life, and every student, regardless of difficulties, will be able to benefit from educational programs, as long as they are given adequate opportunities for the development of its potentialities. This requires the teacher to change his attitude, in addition to redefining roles that can thus favor the inclusion process.

For inclusion to be a reality, it will be necessary to review a series of barriers, in addition to pedagogical policy and practices and evaluation processes. It is necessary to know human development and its relationships with the teaching and learning process, taking into account how this process occurs for each student.

We must use new technologies and invest in training, updating, awareness, involving the entire school community. Pay attention to the teacher's professional training, which is relevant to deepen theoretical and practical discussions, providing support with a view to improving the teaching and learning process.

Accompany the teacher to solve problems in the daily classroom, creating alternatives that can benefit all students. Use flexible curricula and methodologies, taking into account the uniqueness of each student, respecting their interests, ideas and challenges for new situations.

Finally, for the process of school inclusion, there needs to be an improvement in the education system that will benefit each and every person, taking into account the specificity of the subject and not their deficiencies and limitations, even if the country is taking slow steps. and people with disabilities have overcome many barriers to assert their rights within school or outside it.

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