The TIC in the Sciences of the Education

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Abstract: The article analyzes the potential offered by Information and Communication Technologies (ICT) in light of their contributions to Education Sciences. It is based on the advantages in the social appropriation of this technological resource, as well as the axes that must be valued when an impact is intended on the development of a subject in a learning process. The objective is to reflect on the use of computer technologies in the educational teaching process of the contemporary Cuban school, where technologies act as a mediator in the relationship of the student with the group, the teacher and the learning objects. The use of theoretical and empirical research methods, such as the analysis of guiding documents, the systematization of references, bases and theoretical foundations, as well as the historical and logical analysis of the training process with the mediation of ICT, allowed to determine the conceptual nuclei that It is described in the work and the proposal proposed to be developed by the teachers, considering that its impact on education fosters one of the greatest changes in the social sphere. As a result of the research, conclusions are reached where the fundamentals for the use of technologies in the classroom are exposed from a well-organized, planned and controlled process by the teacher.

Keywords: TIC, Sciences, Education, Technology

1. Introduction

The technological development that occurred in the current 21st century, fosters what some authors call a new social revolution or "the information society". With this, we want to refer to the fact that the raw material, called information, will be the engine of this society, and around it, new professions and jobs will emerge, or existing professions will be readapted.

The social dimension of ICT can be seen taking into account the strength and influence it has in the different areas and the new social structures that are emerging, producing a constant and two-way interaction between technology and society [14].

The influence of technology on society has been clearly stated by Area [2], in its law on the relationship between technology and society: "Technology is neither good nor bad, nor is it neutral" (p. 50), but this The relationship should not be understood as a fatalistic and deterministic relationship, but in our opinion it leads us to new situations and approaches that should lead us through research and analysis of its effects to take positions that mark the path and direction to continue attending to the society we want to build.

The values that energize society will be the same that guide the use of technologies, Sancho [13] in the economic bulletin Technical and Globalization, carries out an in-depth reflection on globalization and technology, stressing this idea about the importance of guiding its use to achieve a more humane, just and egalitarian society.

This question is not alien to the education of the new generations, the Education Sciences being one of the most influenced by technologies in this century. Hence, the objective of this article is to reflect on the use of computer technologies in the educational teaching process of contemporary Cuban schools.

2. Development

In general terms, we can say that ICTs revolve around three basic media: computing, microelectronics and telecommunications; not only in an isolated way, but in an interactive and interconnected way, which allows us to achieve new communicative realities.

There are multiple electronic instruments that are framed within the concept of ICT: television, telephone, video and computer. But without a doubt, the most representative means of today's society are computers that allow us to use

different computer applications (presentations, multimedia applications, office programs) and more specifically communication networks and the Internet [12].

The information society in which we are immersed requires new demands from citizens and new challenges to be achieved at the educational level. Train critical, autonomous and responsible citizens who have a clear vision of the social transformations that are taking place and can actively participate in them, in a process of adapting education and training to the continuous changes that are taking place at the social level, cultural and professional [3].

ICTs have been gradually integrated into educational centers. The first theoretical reflections that education professionals made about the adequacy or not of these technologies for learning, has continued with the analysis on the use of these and their link to learning theories, along with methodological proposals for their implementation.

Its impact on education fosters one of the greatest changes in the social sphere. Through the Internet and the information and resources it offers, a new window opens in the classroom that allows us to access multiple resources, information and communicate with others, which offers us the possibility of easily accessing personalities of different opinions [1].

On the other hand, the new learning theories that focus their attention not so much on the teacher and the teaching process, as on the student and the learning process, have a good ally in these media, if they are used in accordance with the postulates of the socio-constructive learning and under the principles of meaningful learning [4].

As different studies have shown, the use of ICT in education depends on multiple factors (infrastructures, training, attitudes, support from the management team, etc.), among which the most relevant is the interest and training on the part of the teaching staff, both at an instrumental and pedagogical level. In the work of teachers, when integrating technological resources, an evolution process is identified that follows 5 stages:

1) Access: learn the basic use of technology.
2) Adoption: uses technology to support the traditional way of teaching.
3) Adaptation: integrates technology into traditional classroom practices, supporting greater student productivity.
4) Appropriation: interdisciplinary, collaborative activities based on learning projects. They use technology when it is needed.
5) Invention: Discover new uses for technology or combine various technologies creatively.

Similarly, it is important to be alert to the possible negative consequences that the use of ICTs may bring for development and, in the face of these possible threats and risks, to design strategies that reduce or minimize them [5].

3. Different ICT Tools in Classroom Education

Currently, information technologies can be considered very favorable digital resources for collaborative work inside and outside the classroom. In fact, the different technological tools make it possible to develop tasks together in real time, as well as to establish a connection between the teacher and the student during the teaching process.

3.1. ICT to Create Work Environments

1) Google Apps for Education. It is a tool that can be used in all educational centers, since it is a collaborative environment focused especially on the academic field where different Google platforms are included to work online such as Gmail, Google Drive, Calendar or Sites, among others.
2) Edmodo. It is a technological and educational platform, free of charge, which allows documents and information to be shared in a private environment, as a social network.
3) GoConqr. This tool is a personalized, online and free study environment. In it you can create, share and discover mind maps, as well as different questionnaires or notes that help improve learning.

3.2. ICT in Education to Debate and Collaborate

1) Padlet. It is an easy and simple to use educational tool. Its operation resembles a 'cork' in digital format where all kinds of documents can be entered in order to share them with classmates.
2) Prezi. This multimedia application allows you to create different presentations in a dynamic and original way, being able to introduce all kinds of files. It is a very favorable resource to develop learning, since it is adapted to the digital age. In addition, the works can be downloaded for their correct execution without the need for internet.

3.3. Other ICT in the Classroom

One of the ICTs in the classroom that stands out for file sharing is Dropbox, an online storage service that can be used to store all kinds of files. In addition, it offers the possibility of creating folders with other users and connecting to other devices through progressive web applications or mobile apps [11].

On the other hand, there are also gamification tools for students to learn knowledge dynamically. An example is Kahoot, an interactive online game where students can answer questions in real time, being adaptable to mobiles and tablets.

Throughout the article it has been possible to verify the importance of ICT in education, but it must also be taken into account that the correct implementation of these depends on several factors, among which the interest and training on the part of teachers stand out, both at an instrumental and pedagogical level [15].

It is vitally important that teachers have some training on

the use of Information and Communication Technology tools in order to learn to apply and introduce them when required to offer a quality education to all students [10].

4. Educational Challenges in Front of the TIC

Technology and its contributions are evolving and changing the fields of knowledge very quickly, it is here, where it can be appreciated that education, as a discipline, is taking on new challenges and challenges that deserve a more detailed study. The work of the teacher, in the face of the transformative vision of a society that needs the incorporation of ICT in the classroom, has seen it necessary to transform it into an agent capable of generating the necessary competencies for a society with a "craving" for technological knowledge, and the frequent use of it in the different aspects of the student [6].

The success of integrating ICT in education depends to a great extent on the teacher's ability to structure the learning environment; Much is said, of taking the "leap" and "breaking" traditional schemes with learning based on cooperation and teamwork; However, the use and involvement of ICT in education has not yet been understood as a tool by which significant learning can be generated, frequent errors in school reduce ICT to that tool that allows access and transmitting information, an error that continues to encompass traditional education [8].

This teacher must structure their role, organizing the way in which students acquire cognitive skills and manage to apply them in various situations. The face-to-face classes that take place in a classroom will need new spaces that complement knowledge through the use of technological means between students and teachers, the appearance of ICT easily fits into this process.

The student participates as that new educational agent, who, as a result of being born in a technified society, has become the main element for communication and social interaction. The diversity of scenarios, contexts and trends in education, at present, impose new roles on the training process, which imply challenges for the professional of the future and the institutions and agents in charge of their training [9].

5. A Futuristic Look at ICT Versus Education

The use of ICT in education has become, more and more, an essential element in the educational environment. This complement, accompanied by technological tools, must generate a reality and presence in society every May, in such a way that its extension to students, teachers and educational institutions, will generalize the optimization of a better teaching-learning process.

Undoubtedly, the analysis of different opinions in the education sector, endorse the importance and growing perspective of technology, which would promote social and collaborative learning, with an aspect capable of generating a link between a transformative and adaptable education to current societies. At present it is not possible to unlink education, and deny its support as a result of ICT, and from this perspective it is difficult to think of any educational innovation that is not linked to technological developments.

The publication in 2002, 2020 Visions, Transforming Education and Training Through Advanced Technologies, shows the different contexts in which educational institutions will see forged the use of ICT in education, the set of articles raises the feasibility of this technology, where The assessment of aspects such as: physical space, materials, teaching models, monitoring, evaluation and teacher training are some of the approaches that education should take to obtain a more objective view of the importance of ICT in education [7].

The inclusion of ICT in education must be accompanied by a series of guidelines that define a frame of reference for decision-making regarding the actions to be carried out during the process. Thus identifying 3 dimensions:

(1) Information, linked to access, model and transformation of new knowledge and information in digital environments.
(2) Communication, linked to collaboration, teamwork, and technological adaptability.
(3) Ethics and Social Impact, linked to the necessary skills to face the ethical challenges resulting from globalization, and the rise of ICT.

6. Conclusions

Technological advances open possibilities for innovation in the educational field, which lead to rethinking the teaching-learning processes and to carry out a continuous process of professional updating. Its intelligent, creative and ethical use can contribute significantly to socialist development, raising living standards and the quality of services provided to the people. The search for mechanisms and ways for the efficient training of the apprentice, a need that is undoubtedly being increasingly conditioned by the demands of today's world, implies dynamics of change in the face of accelerated technological and scientific development.

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