Article **ECORFAN Journal-Republic of Colombia**
June, 2023Vol.9 No.16 1-11

Education at the middle and higher level: Information Technologies, pre-eminence in teaching and learning processes in period of pandemic

Educación en el nivel medio y superior: Tecnologias de Información, preeminencia en los procesos enseñanza y aprendizaje en periodo de pandemia

MANUEL-MORALES, Amador†* & LINO-GAMIÑO, Juan Alfredo

ID 1st Author: *Amador, Manuel-Morales* / **ORC ID**: 0009-0003-0835-4555

ID 1st Co-author: *Juan Alfredo, Lino-Gamiño* / **ORC ID**: 0000-0002-7022-5438, **CVU CONHACYT ID**: 268945

DOI: 10.35429/EJC.2023.16.9.1.11 Received April 08, 2023; Accepted June 30, 2023

Abstract

At present, the influence generated by globalization, the knowledge society and information technologies (IT) propose challenges to educational institutions, the above due to changes related to educational models, job skills, interaction styles and communication between the different social sectors, and even in unexpected phenomena, such as the pandemic generated by COVID-19, a situation that caused chaos in the teaching and learning processes, where teachers and students had overnight the need to resort to technological tools and distance learning platforms in order to conclude a complicated 2020-2021 school year. This document analyzes the increasing influence of IT, the way in which these have increasingly modified educational spaces, for such analysis relevant IT issues that impact the teaching and learning processes are reviewed, at the same time it is also examined how the IT facilitate new pedagogical schemes, thus generating a range of possibilities in training modalities both for the field of online education or for face-to- face education, or even for mixed education (b-learning). Regarding academic training with IT, these allow differentiating a more influential training in students, discovering in them skills to solve problems, professional skills and complete learning, turning them into increasingly competent individuals.

Knowledge Society, Information Technologies, Educational Models, COVID-19, Online Education, Teaching and Learning, B-Learning

Resumen

En la actualidad la influencia generada por la globalización, la sociedad del conocimiento y las tecnologías de información (TI) proponen desafíos a las instituciones educativas, lo anterior debido a cambios relacionados con los modelos educativos, las competencias para el trabajo, los estilos de interacción y comunicación entre los diferentes sectores sociales, e incluso en fenómenos no esperados, tal como la pandemia generada por el COVID-19, situación que originó caos en los procesos de enseñanza y aprendizaje, en donde docentes y alumnos de la noche a la mañana tuvieron la necesidad de recurrir a herramientas tecnológicas y plataformas de educación a distancia con el propósito de concluir un complicado ciclo escolar 2020-2021. El presente documento analiza la ascendente influencia de las TI, la forma en que estas han modificado cada día más los espacios educativos, para tal análisis se revisan temas relevantes de TI que impactan los procesos enseñanza y aprendizaje, al mismo tiempo se examina también como las TI facilitan nuevos esquemas pedagógicos, generando con ello un abanico de posibilidades en modalidades formativas tanto para el ámbito de la educación en línea o para la educación presencial, o incluso para la educación mixta (b-learning). Respecto a la formación académica con TI, estas permiten diferenciar una formación más influyente en los alumnos, descubriendo en ellos pericias para resolver problemas, habilidades profesionales y aprendizajes completos, convirtiéndolos en individuos cada vez más competentes.

Sociedad del Conocimiento, Tecnologías de Información, Modelos Educativos, COVID-19, Educación en Línea, Enseñanza y Aprendizaje, B-Learning

Citation: MANUEL-MORALES, Amador & LINO-GAMIÑO, Juan Alfredo. Education at the middle and higher level: Information Technologies, pre-eminence in teaching and learning processes in period of pandemic. ECORFAN Journal-Republic of Colombia. 2023. 9-16: 1-11

† Researcher contributing as first author.

Introduction

Today we must face the enormous task of improving science education to meet the demands and challenges of an increasingly globalized society. If the new IT are used in an appropriate way, perhaps they can offer the potential to reach the forefront of teaching; this environment is becoming more important every day because to be active in the new social space requires new knowledge and skills to be acquired in the educational processes and these are almost always supported or supported by IT.

With respect to the above, it can be said that IT together with formal or informal education are transforming society, particularly educational processes. IT has become part of everyday life, the decrease in their costs and their popularity have allowed them to be included in almost any daily activity, and for most students the use of these tools is essential, since they allow them to communicate, have fun and carry out their school and social activities. However, these tools should also be treated as one of the main axes to acquire valuable knowledge that will help them to be better people every day.

In the same sense, IT by itself opens up new actions for innovation and improvement of formal teaching and learning processes, however, it should be emphasized that the mere incorporation of technological tools into educational practices does not guarantee that meaningful learning will actually take place; there is evidence that what happens on certain occasions is exactly the opposite, that the introduction of IT in educational practices serves more to reinforce traditional conceptions or practices rooted in teachers; the inclusion of these technologies in inadequate training models not only does not improve learning, but complicates it.

Even with all the above, it is considered that the incorporation of IT in the teaching and learning process is an opportunity that the educational community should take advantage of to generate learning experiences that interest students, promoting in them processes of understanding and construction of knowledge, favoring their reflective development, turning them into increasingly independent, capable and competent subjects.

On the other hand, the main purpose of education should be to contribute to the formation of free, participative, responsible and informed citizens, capable of exercising and defending their rights; who actively participate in social, economic and political life; that is, people who have the motivation and capacity to achieve their personal, work and family development and are willing to improve their social environment, as well as to continue learning throughout their lives, in a complex world that undergoes increasingly dizzying changes. Taking into account the above mentioned, it can be said that:

a) The world has been transformed in a short period of time and will continue to do so, as a consequence of IT innovation.

b) The IT-supported environment can perhaps support current society and future generations in achieving their social, educational and professional development, although this may not be easy since there are other factors or variables in society that are also involved and that could affect learning, such as poverty, discrimination, family breakdown, as well as lack of opportunities.

c) IT and well-intentioned software in conjunction with the internet are tools and as such can be used to the benefit, but unfortunately also to the detriment of education and student development.

d) It is important for the education system to provide students with digital competencies, to teach them to navigate safely through a world that, like the digital environment, offers opportunities, but also presents many unpleasant events; therefore, digital literacy is considered a task that must be addressed alongside the development of IT.

Background

IT has expanded the communication options among human beings, specifically among young people, with a digital device and an internet connection, students or not, have access to an enormous amount of information and knowledge.

ISSN-On line: 2539-1372

Currently, young people live in a world and in circumstances that are very different from those of past generations; currently, the opportunities to enter and advance in school have multiplied, so that the level of schooling is higher than that of previous generations.

For Castañeda (2011), it is a reality that since IT has been in our lives, more forms and modes of communication have appeared, mainly used by young people of school age. The voracious advance of IT in many occasions does not allow to become aware of the problems that revolve around them, even with this, the proper use of digital tools provides much more efficient processes to improve educational projects and therefore the quality of teaching.

Regarding the above, Sayavedra (2018) highlights that, a living being must develop nutrition functions that lead to a full life, but points out, that nutrition is not only what we eat, but also the information and knowledge we acquire through ears and eyes.

Cabero (2012) also explains that, for IT to become true icons of change in the learning process, the updating of teachers must be considered in order to obtain the greatest benefit from these tools.

The digital era, together with the development of IT, demands a new role for teachers and their training, from the transmission of content to the orientation and support of students, creating the conditions for them to actively and skillfully construct their own knowledge.

This leads to the reconfiguration of teacher training, contemplating in a more solid way the pedagogical use of digital environments for the society of the 21st century.

Sánchez *et al*. (2019) argue that in the development of the digital era, most of the attention has been given to students, leaving aside in many occasions the education and training of teachers, a situation that could cause gaps in the educational processes supported by IT and in the student-teacher relationship.

Today's educators should not pass without seeing the current reality, it is not worth transiting with the flag of naivety; they should recreate the problems of the moment, exploit the capacity, as well as the experience, generate a new way of seeing and acting in reality; it is important to generate a thinking more focused on collaboration and the use of new technologies, which provide support to an education with formative elements and whose purpose is the social and professional development of the student.

Menjívar (2019) points out that, on the other hand, educational institutions should support teaching staff with regard to training in the use of IT, but also states that these institutions should require their teachers to design new learning schemes supported by IT. In this regard, Peralta (2013) considers that in the same way that students learn in the new teaching models, this learning reinforces and complements learning reinforces and complements the knowledge of the participating teachers.

Finally, today it is more accurately recognized that IT are tools that facilitate social communication and the acquisition of information and knowledge; although specifically speaking of information, this is not necessarily beneficial or profitable.

Considering the above, we could say that information constitutes a key element from which society participates in processes of globalization, union, education and generation of new knowledge. The knowledge and use of IT by societies represent an ideal means to generalize the education of a society and consequently of a country are directly linked to the educational system, are faced with the enormous challenge of responding to a society that is increasingly globalized and influenced by the vertiginous advance of technology.

Technology advances with a constant profile and normally exceeds the possibility of teachers to be at the same level, however, they should not be held back by this process and have the challenge of being updated in the most modern educational technology, so it would be convenient to commit to programs that promote more innovative educational projects supported by IT and that these are used by institutions of secondary and higher education, and why not, also in basic education.

ISSN-On line: 2539-1372

Problem statement

It is still possible to perceive in many public educational institutions the limitations of the educational approach, focused on the physical classroom and with an instructor in front.

When the student gets to know other environments and other people; how they live, what they think, what problems they face, what is similar or different from them and discovers how easy it is to achieve it, their interest is focused towards other points or references that do not necessarily have their origin in the school.

Education requires an important attitudinal change in people as well as a modification of policies in institutions, especially in educational institutions and with governments. It seems that in a forced way, governments are timidly increasing financial resources for the education sector. That is the problem, education is conceived as a sector that now requires more money than before; it is convenient to invest in education, instruction to be more precise, in today's students so that they learn what society will need from them tomorrow.

It is important to understand that the information that must be disseminated to students cannot continue to be shared mostly through the classroom teacher, a task for which teachers and any other professional, in many cases, are becoming less and less competent every day.

The educational center approach, where it was always maintained that it was possible to find or have access to all the resources for teaching and learning, necessary for the formation of the student, today in most cases is limited or in the worst case obsolete, since the current educational resources are found in everyday life and distributed throughout the world. Even the role of facilitator, advisor, guide or mediator that now seems to be rescued for the teacher may be insufficient or wrongly formulated, when education escapes schools, when students learn and are formed in everyday life, at home, in the street, at work and especially on the Internet.

Technology offers knowledge in a pleasant and practical way, society itself is reinventing itself with all the possibilities offered by IT, therefore schools also have to do so, since they are part of the society in which we live. For all this, it is increasingly necessary to design new scenarios and educational actions, to train people so that they can act skillfully in the various scenarios of this environment.

Therefore, in addition to applying technologies to education, new educational scenarios must be designed where all students can learn to move and intervene in the new technological space. Virtual educational networks are the new basic units of such a training system, which includes the design and construction of new pedagogical scenarios, the development of technological tools and the training of educators specialized in teaching in the new social space.

Relationships in real or natural environments are usually face-to-face, are based on neighborhood or proximity between the actors or interlocutors, and require the spatial and temporal coincidence of those involved in them. On the other hand, virtual space, whose best current exponent is the Internet, is not presential but representational; it is not proximal but distal; it is not based on spatial enclosures but depends on electronic networks whose nodes of interaction may be distributed in different places.

In this new century, digital social networks and online communication are the most developed expression of the virtual environment due to their multimedia character, very important for educational purposes and a very significant level of interactivity.

Justification

It is considered that IT supports educational designs related to what is called open learning or flexible learning, because the student, according to the administration of his time, can or could decide what to learn, how to learn, where to learn, when to learn, and whom to consult.

ISSN-On line: 2539-1372

Considering what was mentioned in the previous paragraph and the current link between education and technology, this chapter aims to analyze and recognize the growing influence of IT in educational processes and the way in which every day they propose new challenges to educational institutions, as a recent example, we can mention the COVID-19 pandemic, which initially unleashed anguish among teachers who had kept away from technology, On the other hand, it represented a challenge for teachers who were already immersed in the use of technology, so that both situations combined and gradually opened the way through collaborative work in which new strategies emerged every day with the use of applications that were gaining ground in the educational environment, making distance education possible at the basic and higher education levels.

We must also recognize the strong linkage that exists between society, education and technology; therefore, it is valid to express that education does not depend only on the government, nor is it the total responsibility of teachers or parents; education must be a joint work of the government through educational institutions, teachers and society, which of course includes parents; it must be considered an act of conscience and responsibility, which we must all adopt to achieve development as a country and reach a better quality of life. Education is considered one of the most influential factors for the advancement and progress of people, societies and countries, which has acquired greater importance due to the scientific and technological changes of the present time.

Research questions

a) What social contribution does the use of new IT generate in 21st century education?

b) What would the teaching-learning process have been like during the COVID-19 pandemic period without the use of IT?

c) How can we face the challenges posed by 21st century society in terms of IT?

d) How can teaching activities be strengthened through the use of IT in the classroom or outside it?

e) What is the role of students with the use of IT as a learning strategy or tool?

f) What is the role of teachers with the use of IT as a teaching strategy or tool?

General objective of the research

To analyze the influence and social contribution of IT as a strategy in the educational evolution of teaching and learning processes.

Specific objectives of the research

a) To generate a new experience of professional knowledge in educational environments.

b) To recognize the importance of IT in educational processes.

c) To promote the responsible use of IT among the educational community and society.

Information technologies in confinement by COVID-19

In our country, in March 2020, from one day to the next, classrooms were empty, the COVID-19 pandemic dictated this event; students and teachers were not supposed to be in them, it was intended to avoid transfers, as well as proximity and physical interaction and thus prevent possible contagion of the voracious virus. This situation placed the entire educational environment in an unexplored environment. A new challenge was presented to all those involved in the educational process.

How to teach or share knowledge if students are no longer in the classroom?

To overcome this unfortunate phenomenon, educational institutions found it necessary to rely on the constant use of IT to carry out classes, counseling, consultations, collaborative work, as well as many other educational actions that from that moment on had to be carried out online or virtually, it was necessary to diversify the way of working; although it is important to mention that these actions would be carried out initially in schools located in urban areas and in circumstances of preparing and directing the educational process through the use of technology.

ISSN-On line: 2539-1372

Adapting to the new challenge or the new need was complicated for many teachers and students, the change was radical, frustration was present, for some the mere fact of being connected (online or offline) generated stress and they did not like the new way of interacting; the usual way of socializing, that physical presence of few or many classmates to which they were accustomed had disappeared, now a small space at home had become the classroom and in some students caused a feeling of loneliness. In traditional educational processes the classroom is considered fundamental, De Haro (2009) defines it as an exclusive and particular society, which is integrated by a teacher and his students, who work and collaborate to achieve common goals.

The confinement by COVID-19 affected the daily processes of teaching and learning; it was a scenario out of the ordinary, everything had changed!

However, for some others, the process of adapting to this new teaching and learning scheme was a challenge.

It could be said that as the process progressed, little by little it came to be considered enriching and motivating, since every day new ways of communicating and sharing knowledge appeared and were assimilated.

IT came to offer other alternatives for learning, for example: It was common to find scenarios where moms and dads learned to use IT at home together with their children, which translates as a bulwark for families that from that moment on and in the face of this health emergency had to adapt to the virtual environment, As the days went by, the online work scheme also brought benefits to the student, especially in the development of their skills to learn to manage their time, compare and evaluate content, be more self-taught, in addition to responsibly experience a learning with a more global approach, this by interacting through social networks with other people installed in other places, but with topics of common interest.

Currently, and after having lived so far the most adverse period of the health contingency, no one can deny that IT offers multiple options to bring knowledge closer to people; education with these is no longer limited only to certain minutes in the classroom, knowledge is all around us, now in the virtual environment, such as social networks, chats, forums, videoconferences, platforms, blogs and many other digital tools that shorten distances and facilitate interaction.

It is evident that in the period of pandemic IT stopped being a luxury and became a necessity, these gradually reaffirmed the term innovative education, even with all its blunders, but these not generated mainly by the technology itself, we are talking about failures in the infrastructure of internet connections associated with insufficient bandwidth, This caused weak and unstable links, in most schools there was no specialized technical staff to provide hardware and software support when technologies were used, lack of teacher training in the use of technology tools, scarce devices (PCs, laptops, tablets, cell phones), for example: when in a household two or more family members had to connect to their class, and even dad or mom had the need to attend to situations of their work remotely and in real time.

Situations such as the above caused anger and disenchantment with the new social interaction in both educational and work processes; it is notorious that the COVID-19 pandemic exposed the fact that not everyone has the same opportunities, in addition to this it was evident that there are students who do not make pedagogical use of technological devices,

It is enough to take a look at the contents or applications installed in their cell phones, although it was also evident that some teachers do not use technologies in their academic function.

At present, the aftermath of COVID-19 or post-COVID-19 is present everywhere and at all times; society, business environments and, undoubtedly, educational environments are no exception. This is a huge challenge for the different educational levels, in terms of considering the new learning scheme through IT and combining it with the face-to-face learning scheme, both designs are fruitful as long as there are teachers prepared to deal with both schemes.

ISSN-On line: 2539-1372

In the COVID-19 pandemic, it has been confirmed that the technologies to meet this alternative or need exist and are currently available; previously, these technologies in educational environments were limited only to postgraduate levels.

We must consider that, if formal education really wants to face the challenge of combining the two formative schemes and achieve productive processes in current education, digital evolution is a necessity, the adoption of connectivity and management tools is required, the task is not simple, the investment is strong, it implies high costs of transformation and network infrastructure, i.e. better coverage with quality connections, technological devices within the economic reach of the majority, competent and efficient teachers and managers in the extensive use of technologies, as well as generating alternatives to develop digital competencies among teachers and students.

Definitely a cultural and innovative change that allows to support the teaching and learning processes according to the context of pandemic and post-pandemic in education.

The importance of Technology in Education

We are living in times with an enormous amount of all kinds of information, the media, altered by technological changes, have been innovating constantly and voraciously. Information nowadays occupies a dominant place and is considered a primordial factor in society, as it has become a main component of society it requires new forms of access and in less and less time, action that is facilitated by technological innovation, it is also clear that this fact has reached the teaching and learning processes, so the training system in educational institutions has been changing with all these developments.

The use of technology as a support resource for education is enriching the teaching process, since in most cases it improves learning and also provides convenient conditions for the student and the teacher to interact in an environment of mutual participation.

Technology as a tool in the teaching-learning process stimulates the fundamental senses such as hearing and sight, which normally favors the learning of the revised knowledge. When reference is made to educational technology focused on the media, emphasis is made on the IT tools that are available and at the service of educational processes, we find powerful tools of great value in educational training, tools that in seconds allow the exchange of information of any type. Likewise, by using these tools correctly, knowledge is acquired, even if some people do not have any preparation or university training, in the same way they can learn about a subject or knowledge in which they are interested.

Technology offers to do the job in an efficient, fast, mobile and error-free way. We are facing a phenomenon characterized first by the growth in the flow of information, the disappearance of restrictions on communication in time and distance and sometimes a significant dependence on technology in almost all sectors of society; in turn these changes have generated consequences in the use of information, for this reason those involved in formal or informal education must be prepared to meet these changes with the study of techniques that allow them to prepare them to have the skills in the use of technology.

It is important for educational institutions to design guidelines that consider the knowledge that must be known about technology, that teachers work in order to meet the objectives established according to the needs of students, it is clear that these are times of social change and this undoubtedly yields results every day, although it is also true that in many cases the changes are slow and not always positive.

It is evident that incorporating technology in learning, generates a great contribution to the teacher when he/she manages in a correct way knowledge with his/her students, we can mention some of the perceptible and objective contributions regarding the use of technologies in educational projects; next, we present some of them:

ISSN-On line: 2539-1372

a) Generate a real link with society.
b) Bringing the student closer to modernization or vanguard.
c) It generates a more practical and effective environment, the theory is limited to basic concepts.
d) Motivate with respect to learning.
e) Increases imagination through images and videos.
f) Encourages participation in teachers and students.
g) Strengthens collaborative work and develops creativity.

Analyzing the previous paragraphs, it is understood that teaching is characterized as a scenario where reflection and collaboration in change take place. The current century attributes to the educational theme the need to continue with this approach and consider the new social demands.

Educational Innovation and digital literacy: Cornerstones of Technological Social development

Society in general is undergoing transcendental changes today and IT increases uncertainty in daily life, as contexts are transformed, but people do not always progress. In the current era, it is necessary to recompose and reconstruct the relationships between society, institutions and technology, deploying strategies in this new space and place to which man must adapt. The new IT is impacting the world

The new IT impact the world with innovations, sometimes becoming something absolute and definitive in its value, which gives rise to the culture of virtuality and are the pillar of global communication through various digital devices.

The word innovation is used to refer to the new, etymologically this word derives from novelty, which means something different from the usual, an idea that appears together with the notion of modernity, therefore, we can say that an innovation could be defined as the novelty and the attempt of assimilation and the way in which that novelty becomes the transformation of an environment, group, individual, institution, classroom or behavior. This is where the question arises:

Are technology tools an innovation in current educational processes, it is considered that yes, by using new technologies in educational environments; but it is also clear that such technologies demand a knowledge and adequate use of them by the educational actors, a task that corresponds directly to the processes of digital literacy.

Supporting the previous idea Casado Ortiz (2016) states that, digital literacy is a process in which the knowledge of IT tools must be acquired and used, in order to address current situations regarding the collection and review of information and knowledge found in various and varied digital environments.

Likewise, IT came to establish itself in our lives and this was confirmed with their performance in the recent pandemic COVID-19, they have absolutely changed our society and mainly the actions of our students. Those individuals who were born in the digital era, are considered with natural digital capabilities, but do not necessarily know how to make good use of new technologies, it is the responsibility of parents and teachers to facilitate a positive incorporation to technology and a good use of it.

Therefore, it is in our hands to favor the healthy and full growth of the new generations with respect to their technological social development.

In essence, it is clear that the learning environment is changing rapidly, the traditional face-to-face educational institutions are moving from being the center of regular training to the creation of remote connections in which students increase their learning through relationships that offer greater exchanges and in less time. With the above, it is clear that access to information in today's society is more intense and the limitations for sharing knowledge and handling large amounts of data have been overcome.

Teaching systems, therefore, have an important role to play in training for the necessary skills and competencies in the use of IT and according to strategies that allow students to be more active. These modalities lead to new conceptions of the teaching and learning process that emphasize attention to emotional and intellectual skills at different levels, preparing young people to assume responsibilities in a constantly changing world.

ISSN-On line: 2539-1372

Thus, with all the unpleasant recent events, we refer to the confinement generated by the COVID-19 pandemic; the information society and the knowledge society are on an upswing that establishes an ever-present and constant positioning of IT, operating within economic systems, in culture, human interactions and evidently in the processes and circumstances of instruction (learning). It is for these reasons that digital literacy plays an important role in the knowledge, learning and responsible application of these new IT.

It is understood that digital literacy is the appropriate integration of technology to teaching and learning processes and not only in formal educational training, digital literacy has facilitated actions of globalization, innovation in different areas of specialization, virtual communication, in addition to crossing cultural boundaries and facilitating broad and continuous training. Consequently, digital literacy is very significant because it is considered the key to inclusion in the new society, we must remember that the digital divide is also social divide, it is for this reason that digital literacy is the key to progress in the information society and the knowledge society.

Challenges of digital literacy in the 21st century

Digital literacy aims to enable people to understand and use the new IT tools. In relation to the above, Barroso *et al*. (2017) state that education is facing one of its greatest challenges, which involves a digital literacy that aims to prepare citizens to perform in the information society and knowledge society.

Reflecting on this, we realize that it is not a simple situation, since it depends not only on individuals, whether they are students, teachers or people from civil society, but also directly involves governments, which are largely responsible for the digital development of a country. In addition to this, the Organization for Economic Cooperation and Development, OECD (2003) states that in order to enter the information society and the knowledge society, digital literacy is necessary and that in contrast to this there is the digital divide, which is considered an obstacle or impediment to the development of citizens and society with respect to the scope and use of technology.

From the above we can deduce that the concept of digital divide is constantly linked to the term digital literacy, and consequently also to IT-related environments.

Unfortunately, it is assumed or it is a reality that, in an information society, those subjects who are not able to incorporate IT in an expressive, communicative, leisure, labor, or social way to their world, in many cases will be rejected by the citizenship, will have less possibilities to develop and develop at all social levels.

From different approaches, digital literacy proposes the acquisition of skills that allow people to be more aware, critical and reflective with information and knowledge through the technologies available to them; likewise, it aims to provide them with skills and abilities that enable them to develop in a changing and complex environment.

In this regard, Scolari (2013) mentions that digital literacy can concentrate many people, who are technologically connected and integrate a large network. What is a fact is that cyberspace has enveloped the society in which we live, this space is accessible thanks to the Internet, it generates cultural transformations that in turn are altering the social and political order of the world, hence new schemes of relationship, approach, participation, marketing and mainly of acquiring and sharing information and knowledge are being generated.

Knowing and understanding all these transformations in the environment is one of the tasks proposed by digital literacy, education that with a critical and reflective approach seeks that individuals have a process of appropriation of the technologies that surround them. Few studies have been conducted on the competencies, capabilities and digital training needs of academic actors, referring specifically to teachers and students. It is assumed that it is normal that at present there is still a digital gap, which should be decreasing every day. Gordo *et al*. (2006) argue that at the beginning of the 1990s there was already a natural facility for young people to learn how to use technologies, to express spontaneously many of their concerns, including their rebelliousness.

ISSN-On line: 2539-1372

Digital literacy proposes the challenge of generating strategies that allow the insertion of technology in learning processes, where the adoption of technology should not be the main purpose of learning, but only the facilitating instrument of educational processes in teaching and learning environments, i.e. the tool.

On this subject Ortega (2019) states that digital literacy should be the didactic tool that allows access to the diverse and enormous amount of information in the knowledge network, but makes it clear that it will not always be scientific knowledge.

|It is possible that one of the immediate challenges that we have as a society is to establish what is meant by digital literacy. Understanding that carrying out this process helps to produce technological advances that improve life and that is basic to involve people in technology as soon as possible. In the teaching performance, ignoring digital literacy would be delaying, even blocking, the opportunity for job growth, because it is unquestionable that this illiteracy also jeopardizes access to employment.

Conclusions

The information and approaches presented throughout this work invite reflection on education supported or supported by IT, it was clear in times of confinement by the COVID-19 pandemic that IT was recognized as a modality that came to install itself in the world of education as a modality that came to be installed in the teaching and learning processes and in some cases mitigated educational lags, in addition to this technology evidenced the divisions and social differences.

However, educational development considering IT still requires a strong investment in infrastructure, human resources and time; but it has already been demonstrated that it can bring benefits in online learning.

It is considered that current educational resources are within reach in the environments in which we live; therefore, it is important that educational institutions consider educational guidelines, where knowledge involving the use of technology is taken into account; that the government, through its educational institutions, together with teachers, work to achieve the objectives set according to the needs of their students.

Technology in education has allowed new teaching models and greater access to information and knowledge, and these are not only available for the development of student learning, but also provide greater knowledge and skills to teachers.

It is clear that we live in an era of technological transition, which was perhaps even more accelerated by the COVID-19 health phenomenon; for this transition to continue through an adequate process and generate positive results in aspects of teaching and learning, we must be willing to participate in the change. It is our responsibility and that of educational institutions to provide digital competencies to students and new generations.

The challenge for educational institutions should be based primarily on their teachers, they must be involved in the effective use of IT, so that they are updated and can support the training of their students, transmitting in a more innovative way the knowledge and skills that today's society demands.

References

Barroso, J., Llorente, M. (2017). La utilización de las herramientas sincrónicas y asincrónicas para la teleformación. *E-actividades Un referente básico para la formación en* Internet. https://dialnet.unirioja.es/servlet/articulo?codigo=2144246

Cabero, J. (2012). La aplicación de las TIC ¿esnobismo o necesidad educativa? *Red digital: revista de tecnologías de la información y comunicación educativa*, *1*, https://redined.educacion.gob.es/xmlui/handle/11162/36036

Casado Ortiz, R. (2016). Alfabetización Digital: ¿Qué es y cómo debemos entenderla? En R. Casado (Ed.). *Claves de la alfabetización digital* (pp. 51-55). Ariel Fundación Telefónica. https://dialnet.unirioja.es/servlet/libro?codigo=423876

Castañeda, M. (2011). *Tecnologías digitales y el proceso de enseñanza- aprendizaje en la educación secundaria.* [Tesis de doctorado, UNED] https://www.academia.edu/9778571/tesis_doctoral_tecnolog%c3%8das_digitales_y_el_proceso_de_ense%c3%91anza_aprendizaje_en_la.

ISSN-On line: 2539-1372

De Haro, J. (2009). Las redes sociales aplicadas a la práctica docente. *Revista DIM: Didáctica, Innovación y Multimedia*, *13*, https://www.raco.cat/index.php/DIM/ article/view/138928

Gordo, A., Megías, I. (2006). *Jóvenes y cultura Messenger*. INJUVE. http://www.injuve.es/observatorio/infotecnologia/jovenes-y- cultura-messenger.

Menjívar, E. (2019). Diseño de ambientes de aprendizaje con TIC. Una experiencia de formación docente. En M. Del Valle y S. González. (Eds.). *Experiencias y tecnologías encaminadas a la investigación y educación. El camino hacia la formación con tecnología* (pp. 52-57). https://www.researchgate.net/publication/354641324_libro_experiencias_y_tecnologias_encaminadas_a_la_inve stigacion_y_educacion.

Ojeda, M. (2001). Los retos de la educación en el siglo XXI. https://www.uv.mx/personal/mojeda/files/2012/04/LosRetosdelaEducacio n-2001.pdf

ORGANIZACIÓN PARA LA COOPERACIÓN Y EL DESARROLLO ECONÓMICO (2003). OCDE. *Los Desafíos de las Tecnologías de la Información y las Comunicaciones en la Educación.* Ministerio de Educación, Cultura y Deporte. https://doi.org/10.1787/9789264103429-es.

Ortega, I. (2019). La Alfabetización Tecnológica. *Revista Electrónica: Educación y Cultura en la Sociedad de la Información.* 10, http://www.usal.es/~teoriaeducacion/rev_numero_10_02/ n10_02_ortega_sanchez.pdf

Peralta, T. (2013). La tecnología educativa como apoyo pedagógico. Utel-Blog Universidad.

Sánchez, A., Boix, J. y Jurado, P. (2019). La Sociedad del conocimiento y las TICS: Una inmejorable oportunidad para el cambio docente. *Pixel-Bit Revista de Medios y Educación, 34, (pp. 179-204).* https://www.redalyc.org/pdf/368/36812036013.pdf

Sayavedra, R. (2018). Ciencia e Innovación,¿Cómo incluir a la educación de este país en ellas? En E. Velasco, R. Guillen, y C. Galindo. (Eds.). *Situación y diagnóstico de la educación en México: perspectivas y posibilidades* (pp. 141-158). STUNAM. https://stunam.org.mx/sa/11carrera/2019/situacion_diagnostico_educacion_mexico_jul19.pdf

Scolari, C. (2013). *Hipermediaciones: Elementos para una Teoría de la Comunicación Digital Interactiva.* Gedisa https://www.google.com.mx/books/edition/Hipermediaciones/gDslB QAAQBAJ?hl=es-419&gbpv=1&printsec=frontcover