Technology in the Realm of Education

Gabriela NEOFET¹

¹PhD student, Stefan cel Mare
University of Suceava, Romania,
gabrielaneofet@yahoo.com

Abstract: When talking about the concept of "frontier", it is commonly understood as a physical, cultural, social or ideological limit that serves to mark the differences between the parts that are left on either side of that real, imaginary or abstract limit. That is, a line, a barrier, a wall, which divides; which determines the position or belonging of each other. Sometimes, the differences between both sides are so large that they generate gaps, unevenness. The causes of these differences may be caused by economic, political, educational, technological factors, to name a few (Ford, 2019: 34). But these factors are not independent, autonomous actors, but exert a mutual and reciprocal influence; they are boosted or limited, causing the gaps to widen or narrow or, even, that the boundaries can be crossed, temporarily or permanently displacing or erasing borders (Lee, & Lee, 2009: 49). The technological revolution that we have been experiencing in the last century produced an economic development that, in turn, transformed today's societies, and with them the educational system and the needs of the citizens. In order to meet these new needs, it is essential to prove that some of these borderlines are not continuous; that both sides can communicate through an integrative dialogue.

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Introduction

We live in a technological society. The young people of today are browsing perfectly on the Internet and social networks (Rus, 2015: 47-48); demonstrating great skills in video games; they use office programs such as word processors, spread sheets, slide shows; they are connected through the computer or mobile devices (smartphones or tablets), with which they listen to music, chat, communicate, take pictures, record videos or audio files.

These young people were born with technology and their learning is natural because it is part of their lives. This is what Marc Prensky defined as "digital natives" (Prensky, 2009: 52-53).

While in Europe a great effort is being made to integrate the subject of Information and Communication Technologies (ICT) in the classroom, there is still a wide gap between non-formal education, where ICTs take the stage, and formal or academic education. The motives? They are numerous and varied. Some derived from erroneous educational policies regarding teachers training; others are related to the lack of financial resources of the educational institutions; and others are rooted in technophobic conceptions.

We could discuss extensively the advantages and cons of the use of technology in teaching / learning processes. However, as a previous step to this debate, it is necessary to understand the current context in which formal education takes place.

The technological revolution that produced an economic and social transformation in Europe highlighted two fundamental issues. On the one hand, that the educational systems were anachronistic. It can be defined it very well: "They were created in the past, at a different time to respond to different challenges, and, on the other hand, the need for urgent reform in the educational field" (Robinson & Hall, 2018: 491-496).

The problem? Today's societies are not the same as those of the nineteenth century or those of the early and mid-twentieth century. The world was transformed economically, socially and culturally in the last 50 years (Robinson & Hall, 2018: 491-496). The technological revolution that arose from Information and Communication Technologies established the foundations of a new economy and society called knowledge.

We are witnessing a growing awareness in most of the political academic world.

At present, the Europe of knowledge is widely recognized as an irreplaceable factor for social and human growth and is an indispensable component for consolidating and enriching European citizenship, capable of

giving its citizens the necessary skills to meet the challenges of the new millennium, together with an awareness of shared values and belonging to a common social and cultural space.

However, educational systems had been forged under the Industrial Revolution and, therefore, behind the shadow of a model based on mass production. In the first schools, the teachers possessed knowledge that they transmitted or dictated to the students, who memorized them and then repeated in an exam. It was in the nineteenth century that national education systems began to be regulated.

A standardized and linear process in which those subjects that were considered useful for the newly born within the industrial economy were taught. A system designed to ensure that all students achieve the same academic objectives and acquire the same learning through a single teaching method; learning that should be measurable through standardized evaluation processes.

The technological advances produced since the second half of the twentieth century allowed us to delve into limited scientific fields, such as that of neuroscience.

For decades we have had abundant information, from various scientific research and studies, about the learning processes and the functioning of the brain that have allowed us to know what are the natural mechanisms of learning, such as experimentation, reflection, the importance of emotions and motivation and, above all, what we learn by doing, not memorizing, and not everyone learns in the same way.

Higher education should play an essential role in promoting social cohesion, in reducing inequalities and in raising the level of knowledge, skills and competencies within society. Higher education policies should focus on maximizing people's potential for their personal development and their contribution to a sustainable, democratic and knowledge-based society.

Lifelong learning is an essential element of the European Higher Education Area. In future Europe, built on a knowledge-based society and economy, lifelong learning strategies are necessary in order to meet the challenges of competitiveness and the use of new technologies and to improve social cohesion, equal opportunities and the quality of life (Delors, 1994: 3-4).

The integral development of the person is sought through imagination, creativity and critical thinking, which allows the knowledge of oneself and the other, overcoming the boundaries of individualism, where society is the most benefited.

The objective based on this new educational conception is to teach students how to know and understand, know how to act, how to apply knowledge in various situations and how to participate in a mature way in society.

In conclusion, the knowledge society, born from the technological revolution, requires an educational model that includes and develops new skills and abilities. Among them we can mention: empathy, social skills, the resolution of problems, knowledge transfer, innovation and collaborative work. Also, the technical skills in the use of ICT, but without forgetting the importance of analytical skills and divergent thinking.

New skills that prepare students for the challenges of a society as changing as that of the 21st century, and so different from that industrial society where the first national educational systems were forged, are highly needed.

It was mentioned that significant learning is achieved when knowledge is put into practice. Students learn best by building something, doing, experimenting and actively participating; not memorizing content, which after a while - usually after an exam - tends to be forgotten. This applies to both scientific and humanistic careers.

The university, from a new perspective, not only considers itself as the place where the student acquires scientific and academic knowledge, but also where he learns how to apply them in his professional life. Learning by doing, it means putting the student in front of real situations.

Another factor to consider, also mentioned, is that not all students learn in the same way because we have different learning styles.

The Learning Styles are "cognitive, affective and physiological traits, which serve as relatively stable indicators of how students perceive, interact and respond to their learning environments" (López, *et al*, 2013: 1361-1379).

Therefore, not all students have the same interests and abilities. Either because of the difference in learning styles or in the development of different intelligences, not everyone learns in the same way. Hence, these theories defend a new educational model that takes into account the learning differences and, therefore, adapts the teaching / learning processes to the abilities of the students, without forgetting to enhance those less developed intelligences or styles.

Until now, education focused on teaching processes, under the budget that teaching produces the act of learning. However, one is not necessarily a consequence of the other, because the learning process is something the student does, not the teacher. The problem is how we can implement a personalized or adapted education for each student when we

are, in most cases, with classes that are too large or overcrowded (Bondarouk & Ruël, 2009: 59).

Here is where ICT can help us in this change of educational paradigm, which proposes a teaching model focused on student learning, being the one who is responsible in this process. This implies didactic strategies, where the student has to face real and significant situations, applying the knowledge acquired in order to find solutions, making decisions and learn autonomously, reflectively and critically, in order to build meaningful learning.

ICTs are generating a new conception of knowledge acquisition. It is no longer necessary for our brain to store all the data because computers do it for us. The important thing in this new context is knowing how to formulate and ask the right questions in relation to these data, shaping a creative way of thinking, combining different perspectives and approaches to a topic, knowing how to work with information, learning to discern between what is valid and not.

From an educational and academic point of view, we could classify ICT from three different, although interrelated, perspectives: as a source of information, as a collaborative tool and as a new field of study.

ICTs as a source of information allow access to information, democratizing sources and cultural heritage, and simplifying the process of generating and disseminating knowledge.

From its function as a collaborative tool, it facilitates both communications and their speed, which works in the favour of the collaborative work between individuals who are even geographically distant, but also in the act of face-to-face teaching between teachers and students and students with each other.

Also, online software or applications allows the process of sharing files and information to take contour, where several users can work simultaneously on the same document. Precisely, one of the characteristics of electronic media is that it allows interaction.

Finally, ICT has also become a new field of study. We need to analyse the influence of technology in society, the importance of humanistic technical training and the new disciplines that are emerging from them. An example is digital philology, which attempts to understand the involvement of the computer in literature through the theory of hypertext and its use for digital literary production.

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