INFORMATION TECHNOLOGIES TO SUPPORT EDUCATION DURING COVID-19

Abstract

The purpose of this research is to make a synthesis of the literature specialized in the implementation of information and communication technology (ICT) in the educational environment, taking into account the advantages and disadvantages, benefits and limitations, given the previous attempts of the Covid-19 pandemic, but also the current needs generated by social distancing. We take into account both educational and technical activities, necessary for the generation and support of online communication and evaluation platforms.

Key word: Information and Communication Technology, Media Pedagogy, Covid-19, Online Education, Social Distancing

Introduction

The personal development and the specific competencies necessary in the professional, educational, but also in the social activities require more and more the use of information and communication technology (ICT). Although the younger generations naturally tend to everything that is new, the mature ones still resist change. But the fact that these information technologies are intuitive and easy to use makes these mature generations not indifferent.
The increasingly important place occupied by new technologies in everyone's lives determines the decision makers to understand how their use would help in the development of the educational system, to the detriment of the classic textbooks, the worksheet, the experiences from the real workshops / laboratories. The European Union has set itself the objective of research in the field of Information and Communication Technologies, in the Seventh Framework Program (FP7), to increase the competitiveness for European TIC industry so that it can model and control its evolution in relation to the requirements of the economy and society.

The appearance of the Covid-19 pandemic worldwide determined the urgency of the process of implementing new technologies in the education of young people carried out by teachers from different institutions.

**Media pedagogy. Challenges.**

We are now witnessing the formation of a new education, also called media pedagogy. The way of scientific and social knowledge is considerably based on online and the information technologies offered. Both teachers, students, students, managers, artists, athletes and other categories, as well as those responsible for information technology face the biggest challenge of their careers. From the point of view of those responsible for the technology, the problems appear due to the dysfunction at the level of the infrastructure, the "denial of service" type attacks or sites that fall due to the heavy traffic.

The challenges determine three modes of action: 1. ensuring the stability and continuity of educational, economic and social life; 2. institutionalization of new ways of working; 3. prioritizing the technology transformed by the knowledge accumulated during the crisis and obtaining resilience. The current conditions lead us to understand the "new normal". The end of the crisis will not mean a complete return to the usual methods. The current crisis, through its characteristics,
demonstrates the essential importance of technology and digital channels for almost any organization, be it educational or otherwise.

The contemporary revolution, amid the technological boom and the Covid-19 pandemic, means not only the integration of new technologies but also the various types of extremely abundant information. The capacity for analysis and synthesis is intensely demanded as well as the critical spirit, essential in sorting information. Society has become increasingly dependent on information, its processing and transmission. As a result, the concept of information society appeared, bringing multiple positive effects (Brown, T., Wyatt, J., 2015) such as: reducing physical and even intellectual effort by automating activities; reduction of data processing and transmission time; increasing performance due to the quality of information.

**Advantages of the New Information Technologies in Education**

The advantages offered by the new information technologies to education are indisputable: quick access to the multiple scientific resources existing in the online databases that help in deepening the studied concepts; open, interactive and interdisciplinary way of teacher-student-student interaction; access to various video materials, tutorials that help in knowing the information and developing online communities of enthusiasts for a certain concept / field. More, other advantages are: quick access to the multiple scientific resources existing in the online databases or the virtual libraries that help in deepening the studied concepts; open, interactive and interdisciplinary way of teacher-student-student interaction; access to various video materials, tutorials that help in knowing the information and developing online communities of enthusiasts for a certain concept / field. Nayar and Kumar (2018) argued that Information and Communication Technology (ICT) removes time and space constraints in higher education and allows access anytime and anywhere. We can also add as a benefit, the specialized learning of tasks; social modeling also takes
place through interactive communication on forums, virtual networks or specific communities. To these aspects is added as an advantage, graphic programs that aim at developing the specialized skills of young people, avoiding elements related to language or other barriers. Another benefit is the fast and specific evaluation of the works / applications made by the students; allows distance teaching. Regarding the interactivity of the existing online computer applications and necessary in the educational process, we can mention that the virtual offers useful skills to young people. Presentation programs with specialized Power Point design have an easy standard for presenting specialized knowledge. Also, programs such as Zoom, Moodle, Google Class, etc. offer various possibilities for interactive voice and visual communication, storage and assessment of topics, online assessment of knowledge gained. Wikis is used by many educational organizations (Hany A. I., 2020), facilitating virtual learning and achieving a more collaborative work environment between students and teachers. There is a rapid electronic literacy, accelerated by the need to communicate in conditions of social distance.

In terms of competencies, virtual education systems succeed in helping to develop specialized competencies on a specific topic. The same systems also develop the critical thinking absolutely necessary in this type of non-standard education. Multimedia systems are a social barometer to guide the tendency of young people to certain topics of interest, research areas, to certain types of jobs.

In the current online education system, based on digital technology, skills move easily from teacher to student and vice versa, avoiding the linear form of traditional, one-way education, in which the teacher had a monopoly on communicating the course. The student is no longer a passive spectator, who only assimilates knowledge, now has a dialogue or just-in-time feedback for the applications made. On this occasion, the educational communication process
undergoes a metamorphosis. The teacher becomes a moderator, a facilitator, a coordinator of the youth education process.

For university institutional development and achieving the expected performance indicators, information and communication technology is essential (Chertok I.R.A et al., 2013) and involves both the creation of software for the teaching process and the design and administration of communication networks and information security. The advantages offered by the use of information systems in the educational activity refer to: the modernization of the teaching-learning-evaluation process; personalized access to information; greater transparency of university processes; development of competition in the university environment.

A large number of higher education institutions have adopted some form of social media for educational or promotional purposes. In addition to the websites created, educational institutions have also opted for social networks due to their interactive nature and the ease of creating specific groups (Kang & Norton, 2006).

**Some limitation and risks about the TIC used in education**

There are some voices that fight the use of information technologies for instructional and educational purposes. This is because the educational software is accused of simplifying the information so as to require zero effort on the part of the student. It is also noted that articles or documents without scientific basis, or specialized references, could lead to misinformation of students, or even completely wrong. Other observable risks in the case of using information communication technologies are related to: vulnerability regarding the personal data of students and teachers; they should be protected; the risk of cyberbullying (cyberbullying); lack of infrastructure, computers and Internet, in some geographical areas; teachers do not have the necessary skills for distance learning and for the use of virtual and digital means; the appearance of school dropout.
As a key element in the education of young people, teamwork appeared in which students share their skills and competencies in order to have as many chances as possible in obtaining interesting and useful materials, but also for a special experience. Thus, for the teacher it becomes difficult to coordinate and evaluate the work scenario and the intellectual contribution of each participant (Aouine A., Mahdaoui L., 2020). Even if technology provides a set of tools to communicate, coordinate and collaborate, I ask the questions: "What should be the individual and collective performance criteria in evaluating a result obtained in the team?"; "How to evaluate and measure the effectiveness and added value of these activities in a professional setting?"; "How can subjectivity be eliminated?". In addition to the six principles of group work assessment set out in Galton (2010), "a fair system should be used that rewards both individual effort and group collaboration." From a didactic point of view, it is appreciated that the evaluation of the work results of a group of young people does not reflect the quality of each member of the team because certain deficiencies of some members can be covered by the competencies of others. The authors Aouine A., Mahdaoui L., (2020) propose a combined system on education management and workflow in the online environment.

Other observable risks in the case of using information communication technologies are related to: vulnerability regarding the personal data of pupils, students and teachers; they should be protected; the risk of cyberbullying (cyberbullying); lack of infrastructure, computers and Internet, in some geographical areas; teachers do not have the necessary skills for distance learning and for the use of virtual and digital means; the appearance of school dropout.

Conclusions

However, there are scientific studies (Ashraf M., Hoque R., 2016; Donner J., Toyama K., 2009) that show that the application of information technology in education is one of the main factors in the development of a nation. Information
technology is considered important for communication and distance education, but it is intended to be used in the short term, as a temporary solution. It is considered that the direct teacher-student / student interaction in the classroom is essential for school / university life and can be achieved even in those areas without infrastructure.

We conclude that, although there are certain opposable aspects between the two education systems, the traditional one and the one based on digital technology, they can still be completed, when the social distance imposed by the regulations on Covid-19 will disappear. The multiple advantages of the new educational system, based on ICT, are important and deserve to be capitalized, bringing added value to the traditional system based on human interaction, often essential.

References:

1. Aouine A., Mahdaoui L., (2020), Integration of Examination Strategies in E-Learning Platform for Assessment of Collaborative Activities, International Journal of Information and Communication Technology Education (IJICTE) 16(1).
2. Ashraf M., Hoque R., (2016), An illustration of information communication technology (ICT)-mediated innovation–adoption–implementation in rural Bangladesh, Elsevier, Volume 15, Issue 1, Pages 45-51.
3. Brown, T., & Wyatt, J. (2015), Design thinking for social innovation. Annual Review of Policy Design , 3 (1), Pages 1-10.
4. Chertok I.R.A, Barnes E.R., Gilleland D. (2014), Academic integrity in the online learning environment for health sciences students, Elsevier, Volume 34, Issue 10, Pages 1324-1329.
5. Donner J., Toyama K., (2009), Persistent themes in ICT4D research: Priorities for inter-methodological exchange. Durban, South Africa: 57th Session of the International Statistics Institute.

6. Galton M., Bangs J., Macbeath J., (2010), Re-inventing schools, reforming, teaching: From political vision to classroom reality, London, Routedge.

7. Hany A. I., (2020), Users' Intention to Share Knowledge Using Wiki in Virtual Learning Community, International Journal of Information and Communication Technology Education (IJICTE) 16(1).

8. Kang S., Norton H.E. (2006), Colleges and universities’ use of the World Wide Web: A public relations tool for the digital age, Elsevier, Volume 32, Issue 4, Pages 426-428.

9. Mrejeru Cecilia-Cristina, (2017), Tehnologia informației și a comunicațiilor, Editura Rovimed.

10. Nayar K.B., Kuman V. (2018), Cost benefit analysis of cloud computing in education. Int.J.Bus.Inf.Sust. 27, Pages 205-221.