The Role of Digital Competence in the Educational System of the 21st century

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Abstract: This paper is the result of a synthesis about the role of digital competence in pre-university and university education in an era where digitization has transformed and reformed society. In the context of the pandemic, the importance of digital competence has become vital for education systems all over the world , which is talked about to this day about technology facilitated teaching.

Keywords: digital competence; personal digital; information

1. Introduction

The last 15 years have marked the history of humanity by the rapidity of the evolution of information technology and brought notable changes in all areas of human activity: economic, social and even in education, teaching and entertainment. Even though it was contested at the beginning because of the phenomenon of addiction and the social phobias with which it was associated, the Internet has today truly become an integral part of everyday life, especially after the health crisis generated by COVID 19.

More than ever, the pandemic period proved we are part of a global community and, being faced with the same challenges, we act and react similarly. The COVID-19 pandemic affected education systems in all countries of the world and demonstrated the school's need to support local communities. Recent studies show that the school revealed its strengths, but also its vulnerabilities, allowing the reaffirmation of trust in the professionalism of teachers, those who ensured the

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resilience of educational systems and the continuity of the educational process, even in extraordinary conditions. Thus, private initiatives such as "adopt a village", "adopt a school" appeared everywhere, as well as know-how and logistic resources entered the school to support the teaching process. These projects encouraged Romanian companies to support the integration and implementation of educational technology in Romanian schools. The schools in the big cities were supported by the local communities, but in the first phase the school depended on the previous experience of the teachers in using ICT, but also on the willingness of the parents to provide a computer, internet and web camera or tablet.

For the academic environment, the adjustment of learning to the virtual space was easier because many universities already had the infrastructure, respectively the platforms intended for the form of ID education and the students and teachers already had solid digital skills. Moreover, the COVID-19 crisis constituted a great "opportunity to expand the innovations that allow a more interactive and experiential way of teaching, as well as the evaluation system that is based on the creation of students' responsibility in their own evaluative process.

According to education professionals, eLearning has a great potential to become the main actor on the pedagogy stage in the 21st century. Asked by journalists what is role she foresees for the technology education in the future, Prof. Linda Darling-Hammond from Stanford University (former advisor to President Barack Obama for educational policies), answered that technology can contribute significantly to the progress of education if used with wisdom. Thus, following studies carried out over the years, Daling-Hammond concluded that educational software gives the best results when it is used for interdisciplinary, creative and collaborative projects, such as developing a website, exploring a virtual museum and so on.

Within this framework, it seems natural to re-read the profiles of high school and college graduates and to observe the vital importance of digital competence in the educational process. Digital competence is one of the eight key competences, embodying the confident and critical use of the full range of information and communication technologies to inform, communicate and solve problems in all areas of life. The high school graduate should have the skills to build a personal digital environment of digital resources and applications, relevant to learning needs and interests, to participate constructively and creatively in virtual learning communities, relevant to future personal or professional needs and interests. He has to be able to critically and reflexively evaluate the impact of information and communication technologies on one's own learning, individual life and social relations, in general.

Although it seems simple to many of us, according to the 2015 Digital Agenda Scoreboard, the digital literacy of 40% of the EU population was at an insufficient level, with 22% of citizens not using the Internet.

Another aspect that deserves to be taken into account is that "as a transversal competence, digital competence now helps us to master other key competences more quickly, such as communication, language skills or basic math and science skills".

According to the research carried out by Riina Vuorikari, in order to better understand the nature of this competence, the European Commission designed the European Digital Competence Framework for Citizens (DigComp), structured in five areas: digital and information literacy, communication and collaboration, digital content creation, safety and problem solving. The five areas count 21 skills, so digital competence does not only involve knowing how to navigate the Internet

It is therefore understood that the school has adapted quickly, combining online elements with other learning tools, the teachers being able to integrate and promote new teaching practices, activities, assessment tools and new communication methods. The European online education platform dedicated to pre-university education offers two examples: Prof. univ. Julian Bobroff, from the University of Paris-Saclay, presented innovative ways to use smartphones to teach science subjects. For example, on the YouTube channel La Physique Autrement, Bobroff publishes demonstration lessons (exclusively in French) such as "Turning a smartphone into a microscope", "Measuring the magnetic field" and "Measuring the speed of sound", demonstrating that a number of scientific experiments can be made only with the help of a smart phone, a fact that recommends it as a really

simple method for students. Also very useful is the Walk Band application, a music studio (virtual musical instrument kit) customized for Android with many functions including Piano, Guitar, Drum Kit, Drum Machine, Bass, multitrack synthesizer, etc. All instruments use real instrument sounds. Drum and guitar beats can be added to a piano song on the app.

Platforms that support teachers have been developed very quickly also in Romania, being used even in the post-pandemic period. LIVRESQ is one such platform for creating interactive lessons and online courses that can be downloaded and then uploaded to other platforms. It also contains the largest library of educational resources in Romania.

There are over 19,600 lessons available, of which 5,673 are public. The LIVRESQ platform also integrates artificial intelligence to help teachers create better and faster lessons and courses. All LIVRESQ materials work and adapt automatically for any device with a browser (phones, computers, tablets, smart TVs, interactive whiteboards, etc.). ADSERVIO is an educational process management platform that benefits principals, teachers, auxiliary staff, parents and students. The modules integrated in this platform are the electronic classbook, messaging, the module dedicated to the secretariat, the module dedicated to principals, the module for the teacher.

The CRED (Relevant Curriculum, Open Education for All) project contains open educational resources (OER) developed by teachers. They were designed with the new competency-based curriculum for primary and secondary education as a starting point.

Kinderpedia is an educational process management platform, which is useful for activities in schools and kindergartens. The key modules are Timetable, Electronic School Catalogue, Homework, Video Conferencing, Activity and Progress Reports, Personal Management, Financial, Messaging, Newsletter, Multimedia, Surveys Module. MyKoolio is an educational portal with interactive lessons that also contains modules for the management of processes in an educational institution (Virtual Catalog, class management, homework module, activity calendar, messaging). Also, Dacoboots is an educational portal with interactive lessons for preschoolers for free, based on the EduTeca collection. VreauLa is an educational platform that helps students prepare for the National Assessment and Baccalaureate exams. Brio tests are standardized digital tests, through which Romanian students from grades I-XII can objectively evaluate their knowledge of the main school

subjects and improve their performance in exams. VoxiClinic is a platform that supports special education, used by speech therapists and special education educators, comes with interactive digital content developed together with specialists in the field. Key functionalities of this platform are client management, online therapy with multiplayer content, appointment calendar, activity reports, notes and children's progress. A Romanian platform approved by the Ministry of Education, as a means of education for the speech impaired, preschool/primary/secondary level, Timlogo also contains interactive lessons and functionalities for special education, very useful for speech therapists and psychopedagogical teachers. Wordwall can be used to create both interactive and printable activities. Most of the templates offered are available in both interactive and printable versions. Interactive ones play on any web-enabled device, such as a computer, tablet, phone or interactive whiteboard. They can be played individually by students or coordinated by teachers, and students take turns in front of the class. The printables can be printed directly or downloaded as a PDF file. They can accompany interactive or independent activities. I-Teach proposes the creation of an advanced virtual environment intended for the professional development of teachers, which integrates web 2.0 tools and facilities specific to virtual communities, for information and training, for facilitating the exchange of experience, for the development of distance teaching projects, for socio-professional, for familiarization with new technologies. The platform also offers several advanced collaborative tools are made available to iTeach users, with the help of which teachers can keep in touch with their colleagues in the country, share information, ideas, materials, and always be up to date with the activities that their online friends do.

VBoard is a platform that offers an interactive whiteboard specially built for online teaching in real time. It is easy to use, supports audio/video directly in the app, allows better control over teaching and supports individual whiteboards - an innovative functionality that allows teachers to simultaneously monitor all students at the same time (either for testing or for training with students of different levels). Superschool offers students school subjects explained in video lessons. Children have lessons accessible at any time, structured and taught by a team of dedicated teachers, in accordance with the current curriculum, to improve school results. Students can understand the material more easily with video explanations and examples, then have worksheets, interactive games and questions for review, reinforcement and practice. Through the edu.sellification platform, teachers and trainers can find books and hundreds of hours of video content, through which they

can learn how to conduct engaging education and active learning methods. Those who gave the courses are renowned professionals from the world of formal and non-formal education.

There is also red-religie.ro, a platform for the discipline of religious education, which provides religion teachers and students with a wide range of resources needed to carry out online and offline activities: didactic materials for teaching, consolidation, evaluation, audio-video materials, additional didactic resources of a wide variety, useful for each lesson, so that they can be used both by teachers from Romania and by those from the Romanian diaspora. Finally, the Edu For LIFE platform is an application of the FOR LIFE community, where you can find content in the form of pdf or video, but also items in different subjects: mathematics, computer science, Romanian, physics, chemistry, biology, logic, music, etc. The teacher can propose their own items to use in class, and their name will appear on each proposed question.

Therefore, the competitive school in the 21st century will be an institution that learns and adapts continuously, which can "make a paradigmatic and cultural shift, a change in mentality and a commitment of the whole school to evaluation and self-reflection" (Harris, 2020) . The new education law is considered to be revolutionary for generations of young public school graduates, flexible to the great technical, economic and social changes of the 21st century. So, according to the law, the modern school must be able to provide empowerment opportunities for teachers in the school to improve their teaching and relational practices, as well as learning opportunities (Seashore, 2016). It is necessary for the teacher, as a creator of knowledge and content, to be able to validate his teaching practices in a collaborative environment, based on authentic dialogue and to be part of the

change of a retrograde mentality, in favor of a new pedagogy based on cooperation and solidarity.

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