DIGITALIZATION OF THE EDUCATION SYSTEM

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ABSTRACT: Digitalization of the Education System.
The transformation of the educational process and the evolution towards the digital school involve ensuring access to administrative solutions for management and teachers, transparency for parents and digital study tools for students and teaching staff, in an environment that allows collaboration and effective communication between all parties involved .
New learning and teaching models and techniques are now available to both teachers and students on the Internet, in the cloud or through mobile applications, and their number, complexity and quality will continue to increase. The web will become an increasingly important educational resource, and those who do not have access to it will be left behind. Next-generation educational solutions are the most important platform that provides access to such resources.
State-of-the-art educational solutions give schools the ability to easily overcome budget constraints, as they allow access to alternative sources of funding

other than their own funds or the state budget. In this case, both the parents and the service provider actively participate in the financing, specifying that the monthly subscription payment model significantly reduces the investment made by the end payer.
Due to the increasing importance of communication and collaboration as key elements in improving the quality of the educational process, there is a need to use a unique, agile and scalable platform that allows easy and secure access to the necessary information and materials.
Web-based educational platforms that also have an electronic catalog component can represent a very useful solution and easy to implement and use at the level of state institutions (inspectors, ministry); such a platform can provide easy and quick access to centralized data on the school situation in different areas and educational units.

Keywords: *education, online, digital platforms, finance.*

1. Introduction

Digital education aims to enable students to thrive in life, become engaged citizens and better integrate into the labor market in an increasingly digitized world[1]. Following surveys carried out among schools, the European Commission observed that certain policies and support measures at school level - such as better equipment or the professional development of teaching staff - could contribute to better learning outcomes, but also that there was significant variation between schools in the use of information technology and access to high-speed internet[2]. A study conducted by the Organization for Economic Co-operation and Development (OECD) highlighted that students in schools that are well equipped with computers and that are connected to the Internet could achieve better learning results[3].

Digital competences and skills, as well as the availability of digital infrastructure and equipment, have become all the more relevant at all levels of education after the outbreak of the COVID-19 pandemic. The pan-

1 European Commission, 2022.

2 Survey of Schools: ICT in education: benchmarking access, use and attitudes to technology in Europe's schools, 2013, și 2nd Survey of Schools: ICT in Education, 2019.

3 PISA 2018 Results (Volume V): Effective Policies, Successful Schools, p. 113, PISA, OECD Publishing, Paris, 2020.

demic highlighted that school systems in almost all Member States were not well prepared for distance learning, as schools were not well connected to the internet and lacked appropriate digital equipment for students and teachers[4]. It was also necessary for teachers to be confident in their ability and have the necessary skills to use digital technology to support their teaching activities alongside innovative teaching methods. In addition, it was necessary to ensure that all students could participate in digital education.

In the European Union, the responsibility for developing education policy, for equipping schools, for supervising the content of the curriculum and for the training of teachers and students rests with the member states. Furthermore, within Member States, responsibilities may be allocated at different levels (ie national, regional or local). Any form of cross-border cooperation between Member States in the field of education is voluntary and is not necessarily linked to the use of any funds from the Union. However, the Union can support and complement the actions of the Member States[5].

Therefore, to guarantee the success of digital education, it is also necessary to digitize schools: providing high-speed internet to schools and equipping classrooms, teachers and students with IT equipment such as laptops or tablets; ensuring that teachers and other school staff have the digital skills they need; provision of appropriate digital teaching materials and secure platforms; and the use of updated curricula and learning approaches.

2. Digital Education throughout Life

The spread of technology has a major effect on society and democratic systems, on the labor market and the way work is organized, and implicitly on the expectations of what skills citizens should possess. This impact can be identified through the transformation of the way of involvement in the processes of public participation and access to public services, the change of lifestyle, the change of the way in which the learning process takes place, the automation of processes at the workplace, the emergence of new jobs,

4 Strengthening online learning when schools are closed: The role of families and teachers in supporting students during the COVID-19 crisis; OECD Publishing, Paris, 2020.
5 Article 165 paragraph (1) TFEU.

the emergence the need for digital skills not only in technology and engineering-related jobs, but also in other jobs.

Digital skills have become indispensable even in areas that traditionally had little to do with technology. For example, in agriculture, farmers take e-Learning or Blended Learning training courses, find out about funding opportunities from online portals and submit documents electronically, learn informally from materials available online and consult through of online communication applications with colleagues in other areas, integrate and electronically control all kinds of equipment at a distance from where they are.

Another example, in the public system, the lack of digital skills among civil servants is reflected in the poor performance of institutions to give citizens access to public services in the electronic system, which would reduce waiting time and bureaucracy and increase the degree of transparency and trust in institutions.

Lifelong digital education targets all citizens and is indispensable in a world undergoing rapid transformation. Thus, European action plans aim to expand digital skills towards advanced ones among as many citizens as possible, especially those involved in education and training. As a reaction to the new challenges of 2020, but also as part of the operating cycles of European policies, the European Union institutions have made considerable efforts to update the common vision on lifelong vocational education and training and, in particular, the digital component. Understanding technology also requires critical reporting on it from the perspective of potential issues related to ethics, environmental sustainability, data protection and privacy, children's rights, discrimination, including gender and disability bias, and ethnic and racial discrimination. In this endeavor, formal education must be complemented by non-formal education in partnership with libraries, industry and research institutions.

During the pandemic, not only educational institutions from compulsory and tertiary education cycles have organized themselves online, but also providers of educational services for adults. From this context, it emerges that the existence of digital skills among adults is a mandatory condition, during the pandemic, for access to education and other fields. Lifelong digital education is more than a goal and end of education, but becomes an essential premise and a means for accessing and acquiring com-

petences in all other educational fields.

In Romania, there are also major differences regarding the use of some concepts: this is the case with the concept of „lifelong learning", which is approached „sectorally", while, for the European Union, it is essential to have a integrated vision of education and training, regardless of the form they take. Not only is there a need for more coherence at the national level, but, first of all, it is necessary to develop an overall vision connected to the European vision and this must be built according to what we want to happen to the beneficiaries of education at the national level on long term. Secondly, more flexibility and diligence is needed in taking over strategic documents and tools developed at European level. This is what happens with the European Framework of Digital Competences (DigComp), which, although it has existed since 2013 and was updated in 2016, is not yet uniformly or sufficiently applied in Romania's internal documents, is not promoted in any way and does not have a version Romanian. One component of general digital skills is the use of software programs that is becoming a mandatory requirement for more and more jobs.

In conclusion, Romania ranks last in the EU in terms of digital public services, being the only country with a score below 50%, compared to the EU average of over 70% and almost 90% in Estonia. The very last place is occupied by Romania and in terms of the measure in the procedural steps taken by citizens in relation to the public administration can be done online (65% compared to the EU average of over 90%). In relation to the business sector, the degree to which public services for businesses are interoperable and operate across borders is below 70% in Romania (last in the EU), compared to the European average of over 80% and 100% in Denmark and Estonia. If in the Open Data chapter, Romania is close to the European average of 65% with a percentage close to 60%, user orientation again places Romania in last place in the EU with 70% compared to the EU average of almost 90%. At the European level, the European Commission analyzed how many women work in IT&C and concluded that only 17% of employees are women. Also, only 1 in 3 people who complete a STEM program are women. In terms of earnings, women in IT&C are paid as much as 20% less than men. Regarding entrepreneurship, only 19% of women are involved in IT&C initiatives, and 93% of the capital invested in European companies has gone to all-male teams.

3. Initial and Continuous Training of Teachers for Digital Education

In Romania, the percentage of teachers who participated in training courses in the last 12 months before the study was conducted was 89%, below the average percentage in OECD countries participating in TALIS, which was 94%. In contrast, a high percentage of teachers report that they need training in advanced information and communication technology (ICT) skills, teaching methods in multicultural/multilingual environments, and teaching methods for students with special needs. Both the participation rate and the need for training in these areas have increased over the past five years.

For a complete and relevant analysis regarding the specialized teaching staff in IPT, it is imperative to complete the existing databases with information on the continuing training courses completed by them. These internships allow specialized IPT teaching staff to teach some disciplines/modules in qualifications acquired through IPT, other than those in the regulations regarding the employment of teaching staff in pre-university education. Also, it is necessary to redefine the staffing of specialist teaching staff in IPT by distinguishing between their initial training, in correlation with the fields, qualifications and training modules in IPT that they can teach, and continuous training through training internships that allow the expansion qualifications/training modules that can be taught. New approaches in this direction should allow and stimulate the recruitment of associate teaching staff coming from among specialists in the real economy.

From the analyzes carried out, a series of logistical, pedagogical, technical and content impediments emerged in the field of many school subjects. Among the difficulties in carrying out distance teaching activities, the teachers signal, in order: lack of tools for class management, for feedback and evaluation, technical difficulties - platforms that need to be installed, which do not work, lack of pedagogical support for carrying out learning activities sufficiently effective and/or attractive for all students: the lack of suitable tools for teaching-learning assessment in their discipline, the lack of educational content (digital resources) in the field of the discipline, the lack of a sufficiently powerful computer and the lack of time needed for the understanding and proper use of digital tools and resources.

The „immaturity" of some skills to use new technologies in authentic didactic contexts makes it difficult to choose and use dedicated platforms

for didactic activities in the online environment. Furthermore, the software tools currently used for synchronous communication with students were not designed for the purpose of teaching activities. To this is added a very important element, which ultimately determines the quality of the learning situation: the exercise of using the technological environment for the design and implementation of complex, relevant, significant didactic activities, integrated in the long-term learning process.

37% of teachers consider themselves advanced users of new technologies (note, but not necessarily advanced users of educational platforms), and 53% consider themselves intermediate users.

This image can constitute a consistent starting point in the development of further continuous training activities for the development of the digital skills necessary in the didactic activity, with an emphasis on the virtual classroom, online learning platforms, applications and virtual laboratories. The existence of a pressure for digitization through continuous professional training of teaching staff was also identified. Training courses, webinars, the CRED project, the activation of CCDs are needed, especially on the dimension of technology use (special applications and platforms for communication and management of learning and assessment processes). It was thus given, a very important signal for the initial training, we currently have a weak digital training and education, both for the use of managing current activities (management and process administration) and as a tool for managing didactic activities of teaching - learning - assessment .

Through the „START IN CAREER THROUGH TEACHING MASTER"[6] Project, MySmis 140783, the Competence Profile of the didactic master's graduate will be created. It will be structured according to the provisions of the European Framework for the Digital Competence of Teachers: DigCompEdu[7], intended to support national, regional and local efforts in developing the digital competence of educators, offering a common reference framework, with a common terminology and logic.

Later, through the „PROFESSIONALIZATION OF THE TEACHING CAREER - PROF" project, it is envisaged to increase the

6 The Ministry of Education and Research launched the project "Starting a career through a master's degree in teaching".

7 The European Framework for Teachers' Digital Competence: DigCompEdu, Translation and adaptation in Romanian: EOS Foundation Romania and the Coalition for Digital Education 2020, Christine Redecker (author) Yves Punie (editor).

capacity to provide internships in over 100 application schools, as well as didactic mentoring activities. Mentoring and the development of laboratory-type professional communities represent a solution for the easy development of training programs with practical experiences, relying on good practices. MEC's objective is to expand didactic master's programs as an efficient and modern way of training/qualifying teachers for preschool, primary and secondary education through advanced university study programs, which aim at the systematic development of their digital skills.

The period of the last months has imposed for some teaching staff the transition from the „teacher-centered" model of education - the teacher decides what content he delivers, under what structure, how he evaluates, how he organizes the teaching-learning-evaluation process, to the model of „centered per student". One of the directions for the transformation of education is the individualization of teaching - learning, an effect of the student-centered approach. This message is complemented by the idea of individualized educational paths, for each individual student. In this sense, the effort required of teachers for the individualization and personalization of the teaching act at the student level (or group of students, with the same learning characteristics) requires support in the form of numerous, varied, quality educational resources available to satisfy this need for individualization (at the level of school cycle/year of study, subject, class, student/group of students – typical, with learning difficulties, with gaps and gaps in previous acquisitions, with special educational requirements, with high abilities and potential for higher achievements).[8]

In order to respect the right of each student to a quality education[9], which contributes to the construction of character, personal identity and the acquisition of skills according to the profile of the graduate, it is necessary for each teaching staff to agree to go through a process of auditing personal skills and, subsequently, follow a plan to improve them through a variety of dedicated programs: training courses, webinars - support, tech-

8 Ioan-Gheorghe Rotaru, "Current Values of Education and Culture", în *Proceedings of the 24th International RAIS Conference on Social Sciences and Humanities,* August 15-16, 2021, Princeton, NJ, United States of America, pp. 87-92.

9 Ioan-Gheorghe Rotaru, "Valences of Education", in *Proceedings of the 24th International RAIS Conference on Social Sciences and Humanities,* August 15-16, 2021, Princeton, NJ, United States of America, pp. 190-196.

nical training on accessing and using some platforms, etc. The main proposed tool is a learning platform.

Education professionals to exercise, from the stage of initial training, the responsibility of their own learning in a safe context. In short, the platform is the context in which they construct their own learning journey, like a puzzle that they can constantly redo, depending on the challenges they face in the classroom.

The platform dedicated to teachers must place them in professional development courses, periodically, in line with global trends. The platform will allow supporting and shaping the processes of improving the skills of teaching staff at their own pace, in a space of emotional safety.

The learning relationship between the „university professor" and the „student teacher-to-be" is partly mediated by technology, which decreases the anxiety associated with the processes of transformation and confronting one's own limits of learning and adapting to the new.

4. Management and use of the Funds Made available by the European Union for the Digitalization of Education

In the case of programs within the cohesion policy, the national or regional authorities of the member states of the European Union are responsible for the selection and monitoring of projects within the operational programs and the disbursement of European financial support. The European Commission co-finances the costs related to the projects in accordance with the conditions established in the applicable general rules and those of the respective programs.

In the case of the MRR, the Member States implement the measures that are defined in the PNRRs. Each PNRR is allocated support in accordance with the estimated costs of the measures it contains, up to a maximum amount provided by the Regulation on the MRR. Unlike cohesion policy programmes, funding from the European Union is not linked to actual costs incurred, but the European Commission disburses the amounts allocated to the NRDPs once the Member State has reached the relevant pre-set sets of milestones and targets. Milestones are qualitative achievements, such as the entry into force of the funding guidelines. Targets are quantitative achievements, such as the purchase of a predetermined number of digital devices for schools. As a rule, Member States use Cohesion

Policy and MRR funds to support ICT infrastructure and equipment in schools, to provide training for teachers or to develop teaching materials.

The Commission's actions to support the digitalisation of schools, including those supporting the action plan, are mainly funded through the Erasmus+ programme, managed directly by the European Commission.

So, to support the digital readiness of schools and other training organisations, the European Commission has developed SELFIE, a free online tool to help schools, teachers and students assess where they are in terms of learning in the digital age. To promote the development of digital skills in schools, the European Commission has extended the European Union Programming Week, an action funded under the Digital Europe programme. The action is led by volunteers who promote programming and digital literacy to help as many young people as possible master the basics of programming and computational thinking. In conclusion, the online platform, eTwinning, supports schools, teachers and students to use ICT to connect across borders and helps them to collaborate on various projects. National support services co-financed by the European Union in the member states and partner countries contribute to the national promotion of the platform. Last but not least, schools and other educational organizations can benefit from individual grants for transnational strategic partnership projects related to digitization.

Conclusions

We all know that the internet is very useful in learning, both young and old. For the little ones the technology is attractive, and for the big ones there must be a strong motivation to use it effectively.

Classroom learning helps students and teachers get to know each other better. This allows teachers to get to know students and better assess their strengths and weaknesses, act as mentors and guide students in their career possibilities.

In a traditional classroom, students can directly share their opinions and clarify their own questions with the teacher, getting their answers right away. By understanding the question-and-answer pattern and suggestions provided by experienced teachers, students can find more useful information than when using generalized online notes and suggestions.

Also, classroom learning is more useful because of a continuous interaction between students and teachers, as it helps students to get rid of their fears about exams.

Finally, interactions with good teachers contribute to students' motivation to achieve high grades.

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