DIGITAL TEACHING IN ROMANIA DURING COVID 19

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Abstract
Europe's digital transformation is being accelerated by the new advances in technology, such as artificial intelligence, robotics, cloud computing and blockchain. The achievements in the field of information and communication technology (ICTs) in recent years have been spectacular. In order to be able to provide young people with the education they need at work and in social life, the school needs to adapt and introduce new forms of learning based on the principle of collective exploration, play and innovation. Digitization in education is a complex process that involves a number of aspects external to the education system. The main factors involved are related to quality, technological infrastructure, pedagogical approaches and last, but not least, organizational elements. The present study included a secondary research of the academic literature, after which a questionnaire was formulated. The questionnaire consisted of two parts. The responses were analyzed and structured to be then exported to the SPSS program, with the support of which the multiple regression method was applied. In this crisis situation, Romania has taken important steps towards the digitalization of education. This experience is very helpful in meeting the digitization requirements of education imposed by the European Union. At present, when information is easily accessible and the economic environment is constantly changing and adapting, I am convinced that we need fast, efficient and effective actions, so as not to lose the advantage of what we all have already learned.

Keywords
Education, digitalization, academic environment, biological crisis, Romania.

JEL Classification
A22, A23, I12, I21, I23

Introduction

"Any sufficiently advanced technology is indistinguishable from magic.", said the British science fiction writer Arthur C. Clarke (Clarke, 2020). This quote challenges us to be creative and not let us be scared or influenced by what cannot be done, but inspired by what can be done. Wherever we encounter magic we must be sure that we will also find magicians.

Technology has proven to irrevocably transform the way we conduct our business. The new conquests of the IT industry have been adopted by the younger generation around the world with amazing speed and ease. Whether we are talking about computers, tablets or phones, even the smallest children, even before they know how to read, are able to use them faster than the adults that read the instructions. In such situations we ask ourselves how and where these skills can be learned.

The achievements in the field of information and communication technology (ICTs) in recent years have been spectacular. Mobile tools such as laptops, tablets and smart phones in combination with cloud applications and virtual communication networks, supported by the internet, have laid the foundation for teaching and learning in the virtual environment (Barak and Ziv, 2013).

One factor that slowed down the implementation of these tools in education was the perception of teachers related to these tools which they see as factors that distract students from communication with their teacher (Barak, 2013). On the other hand, students consider digital materials as interesting, fun and motivating them to learn when they are presented and explained during class. Students need guidance in using digital materials so that they can achieve their teaching goal (Demirkan, 2019). Even if the perception of some teachers is not positive towards the use of digital tools, Kuboja shows that this is not a real factor of influence (Kuboja, 2019). This perspective partially contradicts the elements captured by Barak six years ago (Barak, 2013), which show a positive evolution of perception in some countries around the world regarding the digitalization of education. Both authors emphasize the importance of teacher education for the proper use of modern technology.

The focus on the digitalization of education is not a new element in itself. A number of studies in this direction have been conducted in various countries around the world. The first steps focused on teacher training. The tools accepted by the education systems turned out to be computers, in the form of desktop and laptop with video projectors. Digitization is largely not present in education. The tools used aren't the revolutionary ones, that are mainly related to the software elements, but the hardware tools which facilitate and support the old teaching practices (Brun and Hinostroza, 2014). Teachers are not scared by the new developments in technology, but do not fully perceive its usefulness. An important factor for most teachers is self-efficacy. This is an important motivational factor, which is also related to the confidence and competence of teachers in performing a task (Lemon and Garvis, 2015). In Australia, for example, the training of future teachers makes it mandatory to use digital technologies in education to provide all children and young people with access to the education system (Bullock, 2013). The case of Australia is a special one, where the "distance school" system has long been implemented and used with good results.

In order to be able to provide young people with the education they need at work and in social life, the school needs to adapt and introduce new forms of learning based on the principle of collective exploration, play and innovation. The Australian curriculum is now adapted and oriented towards a more differentiated, more collaborative and creative educational system, taking into account the opportunities offered by technology (Littlejohn and Hunter, 2017).

This process of digitizing education is not without its risks. Through inappropriate use of the technology, teachers may be ridiculed, marginalized, overworked or even exploited. These risks must be taken into account in order not to lose through the overuse of technology the possibility of critical pedagogy, transparency, flexibility and creativity specific to the academic environment (Adams, 2018).

The digital transformation in education

Europe's digital transformation is being accelerated by the new advances in technology, such as artificial intelligence, robotics, cloud computing and blockchain. This transformation leads to the disappearance of jobs and the creation of new ones, for which we must have well-

prepared people. Thus, the European Commission has established a list of priorities that involve the digitization of the education system. These priorities concern: improving education through better data analysis, achieving personalized education, creating a European platform for higher education supported by Erasmus +, using digital technologies in the learning and teaching process, increasing motivation and creating measures to reduce the differences in girls' digital skills compared to boys (European Commission, 2018).
In April of this year, McKinsey published an article in which the pandemic caused by COVID-19, forced the transition from classical to online education, and compared it to a climate crisis. Among the common aspects of the two phenomena is that of global cooperation and coordination, which in the case of education can open new horizons for long-term increase in quality (Pinner, Rogers and Samandari, 2020). Even if it does not refer directly to university education, the results of the PISA study from 2018 show a decrease in the level of training of young people, and the results in Romania were not at all gratifying. Positioning our country on level 2 of 6 shows how many measures to improve the learning process are required (Schleicher, 2019).
Digitization in education is a complex process that involves a number of aspects external to the education system. The main factors involved are related to quality, technological infrastructure, pedagogical approaches and last, but not least, organizational elements. The provision of online and flexible educational programs also influences and is influenced by the degree of internationalization. To achieve this, the most correct administrative conditions and solutions, data security systems, plagiarism and fraud detection, data storage and research, access to libraries and other e-learning resources, communication and collaboration between universities must be ensured (Tømte et al., 2019). An inevitable condition for the real success of the digitization of the educational system is the preparation of teachers and pupils and students for the correct and maximum use of technological resources (Rienties, Brouwer and Lygo-Baker, 2013). In Australia, for example, a working group has been set up to analyze the situation in educational institutions in relation to the gaps and barriers in the effective use of digital tools in education. The article published in 2019 by Professor Podorova and colleagues presents the level of knowledge, digital skills and confidence in their use at a very low level, even among young people (Podorova et. al., 2019). This confirms the need for schooling on digital issues among all participants in the field of education.
A positive example in the use of digital tools and methods is Finland, where various digital tools are used, such as audio, video and interactive platforms. These tools have a positive effect on the academic performance of students. Their autonomy and flexibility method in relation to space and time is a real support for students who cannot regularly attend courses. Students can choose their courses according to their own interests and can individually manage the time they need to study. This form of learning also presents the obvious limitation of the lack of direct interaction with the teacher, if the study is carried out outside the pre-established program (Rama Devi et. al., 2019).

Digitization of the academic educational process in Romania

By changing from one day to another the education system from the classical one to online, a situation that took place in Romania in March of this year, the vast majority of teacher faced a great challenge. The lesson plan, the content and the number of topics offered for discussion were changed. One aspect that students noticed and complained about was the large volume of homework that appeared with the transition to online education. Without prior teacher training for online course, they were overwhelmed by a very large volume of student responses to their questions and homework assignments. This has led to an exponential increase in workload, and in some cases to a negative impact on the quality of the learning process.

The digitization of the educational process can be implemented through decisions of the external environment (government, laws, regulations, etc.) and / or through initiatives of the internal environment, which are often top-down (Zawakcki-Richter and Latchem, 2018). At the moment, the transition has been clearly caused by a situation external to the learning process, and the central question of this study is how it was perceived by students and to what extent digitization can offer a chance to increase in the quality of learning.
Fortunately, in many situations, as the results of the analysis in this study show, the quality of learning has increased with the correct use of modern technical means.
The present study included a secondary research of the academic literature, after which a questionnaire was formulated. The questionnaire consisted of two parts. The first part is related to the age, sex, occupation of the respondents while the second part consisted of seven questions with scale answers. At the end of the questionnaire, students were invited to express their views on the online learning experience through an open-ended question. The students' answers to the questionnaire formed the basis of the primary analysis. The responses were analyzed and structured to be then exported to the SPSS program, with the support of which the multiple regression method was applied (Sreejesh, Mohapatra and Anusree, 2014).
The multiple regression analysis was chosen, because it is a dependence technique in which we could analyze the relationship between a single-dependent variable and several independent variables. The proposed questionnaire received 226 responses, of which 63.7% came from women and 35% from men. The difference was 1.3%, respectively those who did not want to answer specifically.
The dependent variable for achieving the multiple regression was the positive experience of online learning with the increasing quality of learning as a result. Thus, we analyzed to what extent the increase in learning quality depended on the following aspects defined as independent variables questions: “easier access to information?”, “Can online education occasionally compensate for attending classes (in situations of illness, etc.)?”, “Does combining interactive platforms with video tools increase the quality of learning?”, “Does direct personal feedback during class help better learning?”, “Is it an advantage to be able to answer all the questions raised during class?” Is the fact that the question is accessible only to the teacher is it an advantage?“.
Table no. 1, generated by the SPSS program, presents the regression output. This shows the model summary, which provides the value of R (Multiple Correlation), R2 (Coefficient of Determination) and Adjusted R2 (R2 adjusted with Degrees of Freedom). In this study of R is 0.941. It indicates the multiple correlation between dependent and independent variables. In the case of this analysis we can say that in a proportion of more than 90% the increase of learning quality depended on the advantages offered by digital tools. The value of R2 tells us that our dependent variable is determined by the dependent ones in proportion of 88.5%. This means that there are other factors that influence the analyzed dependent variable with a weight of 11.5%.

Table no. 1 Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,941	,885	,882	,683	,885	282,069	6	219	,000	2,043

Source: own research

Applying the analysis of variance, we get all the sums of squares associated with regression. These values are small and confirm our conclusion. Another important value is that of F,

which is in our case 282,069. This is significant, which means that there is a less than 0.1% chance that the null hypothesis will be true.
Multiple regression has confirmed that the correct use of digital learning tools can lead to improved learning. Even without the use of multiple regression, the large number of responses received from students in favor of digital tools leads us to the same conclusion.
For example, in question 5 “Being able to receive direct feedback to your answers during the online courses helped you to understand and learn better?” 75% of the students answered that it had a very positive effect on them. For 12% of the students it was an average influencing factor, and for the rest, it did not significantly influence the quality of the understanding of the subject or of its learning.
The use of the immediate feedback influence on the learning process has been tested in various studies. In order to differentiate the feedback that the teacher normally gives in class that all present students can hear, we also asked if each student had the opportunity to answer all the questions, and if the teacher’s feedback was seen only by the responding student, this encouraged them to be more active in class. The students acknowledged that the classes were much more demanding, that they were motivated by these methods to participate more actively in the class and that the personalized feedback received by each individual, without being exposed to the criticism of colleagues motivated them to respond more actively. Because of this, the most shy or insecure students were more involved throughout the course. There are several digital tools for conducting these types of tests and information stabilization exercises. One of them is the Poll-Everywhere application, which also had good results in the case of language teaching (Ismail, Elihami and Mustakim, 2019).
From the perspective of master's and doctoral students, it is necessary to use blended strategies and digital technology to support the interaction between teacher and students, but also between students. Students participating in these programs are required not only to accumulate information, but to be able to analyze the materials proposed by teachers so they can draw their own conclusions, which they can apply in their professions in everyday life. In the case of doctoral students, it is necessary to be able to analyze and synthesize scientific materials, most importantly creating original and valuable materials (Balula, Vasconcelos and Moreira, 2019).

Conclusions

The vast majority of students surveyed had a positive online experience (72.6%), which allowed them to obtain good learning outcomes. The next exam session will show us if this experience will be reflected positively on the students' grades. In this crisis situation, Romania has taken important steps towards the digitalization of education. This experience is very helpful in meeting the digitization requirements of education imposed by the European Union. Regarding the measure proposed by the European Union to reduce the differences between girls and boys in terms of digital skills, our country is in a very favorable situation, this being almost non-existent in the case of Romania.
Will positive results related to online learning and the additional benefits it brings, without being able to replace interpersonal interaction, be taken into account even after the factors that determined this situation will disappear? Can all the tools that have allowed the exponential growth of students' attendance at online courses and seminars be neglected in the future? The effect of Matthew is known in science, which also tells us that for the results of scientific research to produce effects it must belong to a recognized author and be cited by other personalities in their work (Merton, 1968). At present, when information is easily accessible and the economic environment is constantly changing and adapting, I am convinced that we need fast, efficient and effective actions, so as not to lose the advantage of what we all have already learned.

Another relevant aspect presented by the students from the faculties that prepare them for creative professions such as journalism or communication, the lack of human interaction is a negative factor. This is also a limitation of the present study, which did not propose from the beginning the differentiated analysis of students' training in the case of creative professions compared to the rest.

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