

DIGITALIZATION OF LEARNING PROCESSES - CHALLENGES AND OPPORTUNITIES

Professor, Ph.D., Constanța POPESCU

”Valahia” University of Targoviste, Romania

E-mail: tantapop@yahoo.com

Assist., Ph.D., Georgiana-Tatiana BONDAC

”Valahia” University of Targoviste

E-mail: georgianabondac@yahoo.com

Abstract: *In the age of digitization of learning processes, significant challenges and opportunities arise. The radical changes brought about by digitization in teaching methods can be perceived both as stressors and as opportunities for transformation. Challenges may include adapting to new technologies, managing large volumes of information, or ensuring equitable access to resources for all students. On the other hand, digitization offers opportunities in terms of personalization of learning, online collaboration and access to diverse educational resources. It is essential to explore these challenges and opportunities to effectively use new technologies in the digital age of education. Therefore, the purpose of the article is to find an answer to the question "What are the challenges and opportunities faced by teachers and students in the digitization of the instructional-educational act"?*

Keywords: *digitization, school environment, instructional-educational act, students, teaching staff.*

JEL Classification: *M15, O15.*

1. Introduction

In the age of digitization of learning processes, significant challenges and opportunities arise. The radical changes brought about by digitization in teaching methods can be perceived both as stressors and as opportunities for transformation. Challenges may include adapting to new technologies, managing large volumes of information, or ensuring equitable access to resources for all students. On the other hand, digitization offers opportunities in terms of personalization of learning, online collaboration and access to diverse educational resources. It is essential to explore these challenges and opportunities to effectively use new technologies in the digital age of education.

The current digitization process is driven by the incorporation of information and communication technology advances in areas combining electronics and mechanics, cybernetics and the development of innovative software such as those based on machine learning. The easier access of individuals to these innovations through their devices (Internet of Things - IoT) and the new demands of technology target groups have also contributed to the expansion of digitization, especially among digital natives.

2. The advantages and disadvantages of digitizing the instructional-educational process

There are many advantages of digitizing educational materials and resources.

First, this process enables extensive access to information. Students can now easily find and use digital resources from anywhere in the world with just an internet connection.

Second, digitization facilitates the rapid and efficient exchange of information. Teachers can share resources with colleagues or post them online for students to access at their convenience.

In addition, digital resources are often more interactive and engaging than their analog counterparts. Students can work with multimedia content and learning tools that actively involve them in the learning process.

It is indisputable that digitization has the potential to revolutionize the education system. However, there are also a number of challenges that need to be addressed while implementing these changes. These include ensuring that all students have access to the necessary technology and resources, preparing teachers and students to use new digital tools and resources effectively, and addressing data privacy and security concerns.

3. Research study methodology

The research study wants to answer the question "What are the challenges and opportunities faced by teachers and students in the digitization of the instructive-educational act?".

The survey unit is represented by teachers and students from high school units, from Dâmbovița county. The voluntary strategy was used. The sample is 50 teachers and 50 students.

In table 1, you can see the gender of the respondents in the two categories (teachers, students), as follows:

- Male teaching staff 45.7% and female 54.3%.
- male students 55%, and female students 45%

Table 1. Weight of answers for question "I1." Gender of respondents"

		Procent
Professors	male	45.7
	female	54.3
	Total	100.0
Students	male	55
	female	45
	Total	100.0

Source: developed by the author

Table 2 analyzes the respondents' opinions regarding the tools used by teachers and students. Analyzing the answers according to the teachers' and students' opinions, it can be found that the main tool used is the laptop (51.4%, 48.6%). Laptops are portable, allowing users to easily transport them between home and school or other locations. This aspect is important for flexibility in learning and teaching, especially in the context of distance learning or extracurricular projects. Table 2. Weight of answers for question "I2." The tools used by teachers and students".

Professors		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	interactive digital board	6	17.1	17.1	17.1
	computer	7	20.0	20.0	37.1
	laptop	18	51.4	51.4	88.6
	tablet	4	11.4	11.4	100.0
	Total	35	100.0	100.0	
Students		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	interactive digital board	18	51.4	51.4	51.4
	laptop	17	48.6	48.6	100.0
	Total	35	100.0	100.0	

Source: developed by the author

Analyzing table 3, the challenges arising from the digitization of learning processes can be seen. The students' answers are: they do not have access to devices or the internet 21.0%, lack of skills in the effective use of new digital tools and resources 26.0%, data privacy and security 53.0%. The teachers' answers about the challenges of digitization are: they do not have access to devices or the Internet 20.0%, lack of skills in the effective use of new digital tools and resources 26.0%, data privacy and security 54.0%. The challenges identified in Table 3 highlight the need for investment in digital infrastructure, continuous training programs to develop digital skills and the implementation of strict cyber security measures. Only by addressing these aspects can an effective and safe transition to digital education be ensured, benefiting both students and teachers.

Table 3. Weight of answers for question "I3." What are the challenges in digitizing learning processes?"

		Procent
Professors	they don't have access to devices or the internet	20.0
	lack of skills in the effective use of new digital tools and resources	26.0
	data privacy and security	54.0
	Total	100.0
Students	they don't have access to devices or the internet	21.0
	lack of skills in the effective use of new digital tools and resources	26.0
	data privacy and security	53.0
	Total	100.0

Source: developed by the author

Table 4 shows the opinions of the respondents regarding the advantages of using digital tools in learning processes, as follows:

- didactic staff believe that the advantages are: digital resources are interactive 18.0%, allow extended access to information 50.0%, customize the inscriptive-educational process 32.0%.

- students believe that the advantages are: digital resources are interactive 20.0%, allow extended access to information 50.0%, personalize the inscriptive-educational process 30.0%.

The similar views of teachers and students regarding the advantages of using digital tools reflect the shared recognition of the benefits of technology in education. Extended access to information and personalization of the learning process are seen as the main strengths, while the interactivity of digital resources is also valued. These advantages emphasize the importance of integrating technology in education to improve the quality and efficiency of the educational process.

Table 4. Weight of answers for question "I3." What are the advantages of using digital tools in learning processes?"

		Procent
Professors	digital resources are interactive	18.0
	allows extended access to information	50.0
	personalizes the inscriptive-educational process	32.0
	Total	100.0
Students	digital resources are interactive	20.0
	allows extended access to information	50.0
	personalizes the inscriptive-educational process	30.0
	Total	100.0

Source: developed by the author

The personalization of the educational process is considered a major advantage, as it allows the adaptation of teaching materials and methods according to the needs and learning pace of each student. This can lead to more effective and individually tailored learning.

4. Conclusions

In this era, using a computer during class is no longer considered a luxury, but a necessity. Each teacher can create a concise presentation of the lesson in PowerPoint or creatively integrate artificial intelligence. Technology can replicate, replace or automate already existing educational practices.

Even if not every subject and every lesson lends itself to the use of the computer, it can have a significant impact on students' attention when it is used as a complementary tool in the lesson.

In a modern perspective, the teacher focuses on facilitating learning opportunities for students. In this framework, the use of new technologies represents the ways in which students' learning activities are shaped.

Digitization of learning processes brings both significant challenges and opportunities. It is essential that policymakers, educational institutions, teachers and communities work together to address the challenges and capitalize on the opportunities offered by digital technologies. Constant adaptation and continuous training will play a crucial role in the success of this transformation.

References:

1. Akerkar, R., 2019. *Artificial Intelligence for Business*. Western Norway Research Institute, Springer Briefs in Business, Sogndal, Norway.
2. Albrecht, S.L., Connaughton, S., Foster, K., Furlong, S. and Yeow, J., 2020. Change engagement, change resources and change demands: a model for positive employee orientations to organizational change. *Frontiers in Psychology*, 11.
3. Ashforth, B.E., 2020. Identity and identification during and after the pandemic: How might COVID-19 change the research questions we ask? *Journal of Management Studies*, 57(8), pp.1763– 1766.
4. Kopka, A. and Grashof, N., 2022. Artificial intelligence: catalyst or barrier on the path to sustainability? *Technological Forecasting and Social Change*, 175(2022).
5. Liu, X., Wang, S., Wang, P. and Wu, D., 2019. *Automatic grading of programming assignments: An approach based on formal semantics*. In Proceedings of the 41st International Conference on Software Engineering, Software Engineering Education and Training, Montreal, QC, Canada, pp. 126–137.
6. Maloku, D., Balogh, P., Bai, A., Gabnai, Z. and Lengyel, P., 2020. Trends in scientific research on precision farming in agriculture using science mapping method. *International Review of Applied Sciences and Engineering*, 11(3), pp. 232–242.
7. Martinez, J.A. and Broemmel, A.D., 2021. Pencils down: Educators respond to the uncertainty amidst COVID-19 school closures. *International Studies in Educational Administration*, 49, pp.109–132.
8. Millar, C., Hind, P. and Magala, S., 2012. Sustainability and the need for change: organisational change and transformational vision. *Journal of Organizational Change Management*, 25(4), pp. 489-500.
9. Mislevy, R.J., Yan, D., Gobert, J. and Sao Pedro, M., 2020. Automated scoring in intelligent tutoring systems. In *Handbook of Automated Scoring*; Yan, D., Rupp, A.A., Foltz, P.W., Eds.; Chapman and Hall/CRC: London, UK, pp. 403–422.