Дигитална трансформация на традиционното обучение

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Digital transformation of traditional education

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Abstract:

The natural processes caused by the global pandemic that began in 2020 forced educational institutions to face the challenge of digital transformation. While 4 years ago the majority of universities were wandering around the question of how to do the first stream on a topic with a blended learning method, the pandemic has presented them with questions such as: management of learner data, definition of the roles and rights of teachers in the digital world ; digitization of educational material; Learnin Design of the material to be digitized to determine the best method of conveying information.

In this study, we share the benefits of meaningfully integrating AI platforms. In addition to the trainees, for the educational institutions they are: an opportunity to draw a near-term roadmap for development, and in the future - new niches for the offered training programs.

Keywords: digital technologies, digitalization of educational material

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INTRODUCTION

The main ideas of this paper are to confirm that digital technologies are transforming education, opening up new opportunities for higher quality, accessible and contemporary education.

The COVID-19 pandemic has accelerated digital transformation, forcing educational institutions to reconsider traditional teaching methods. Integrating artificial intelligence (AI) platforms into education can improve the quality of education, make it more accessible and prepare learners for the job market. However, it is essential to make delivering digital transformation in a way that takes into account the needs of all learners and does not exacerbate educational inequalities.

Challenges to the introduction of digital education are many, starting with the lack of digital competence. According to Eurostat data, Bulgaria and Romania rank last in digital competence and are significantly below the EU average (Figure 1).

This deficiency in digital skills was felt most keenly during the COVID pandemic, and led to the difficulties faced by both educational institutions and learners. On the one hand, the lack of time for a phased integration of digital learning systems has put the education system to a serious test. On the other hand, even proponents of traditional "analog learning methods" were forced to work digitally. The COVID-19 pandemic has also reinforced one of the most serious obstacles, namely culture change - however difficult and time-consuming it might be. Another serious problem has come to light - the lack of standards and guidelines for digitizing education. In addition to all the problems and setbacks facing the learning system and the world at large, the advantages of digitalization were very clearly highlighted, namely that artificial intelligence can be used

to personalize learning, provide real-time feedback, and automate time-consuming tasks.

It became clear that online courses and libraries can make education more accessible to people from different locations and with different needs and abilities.

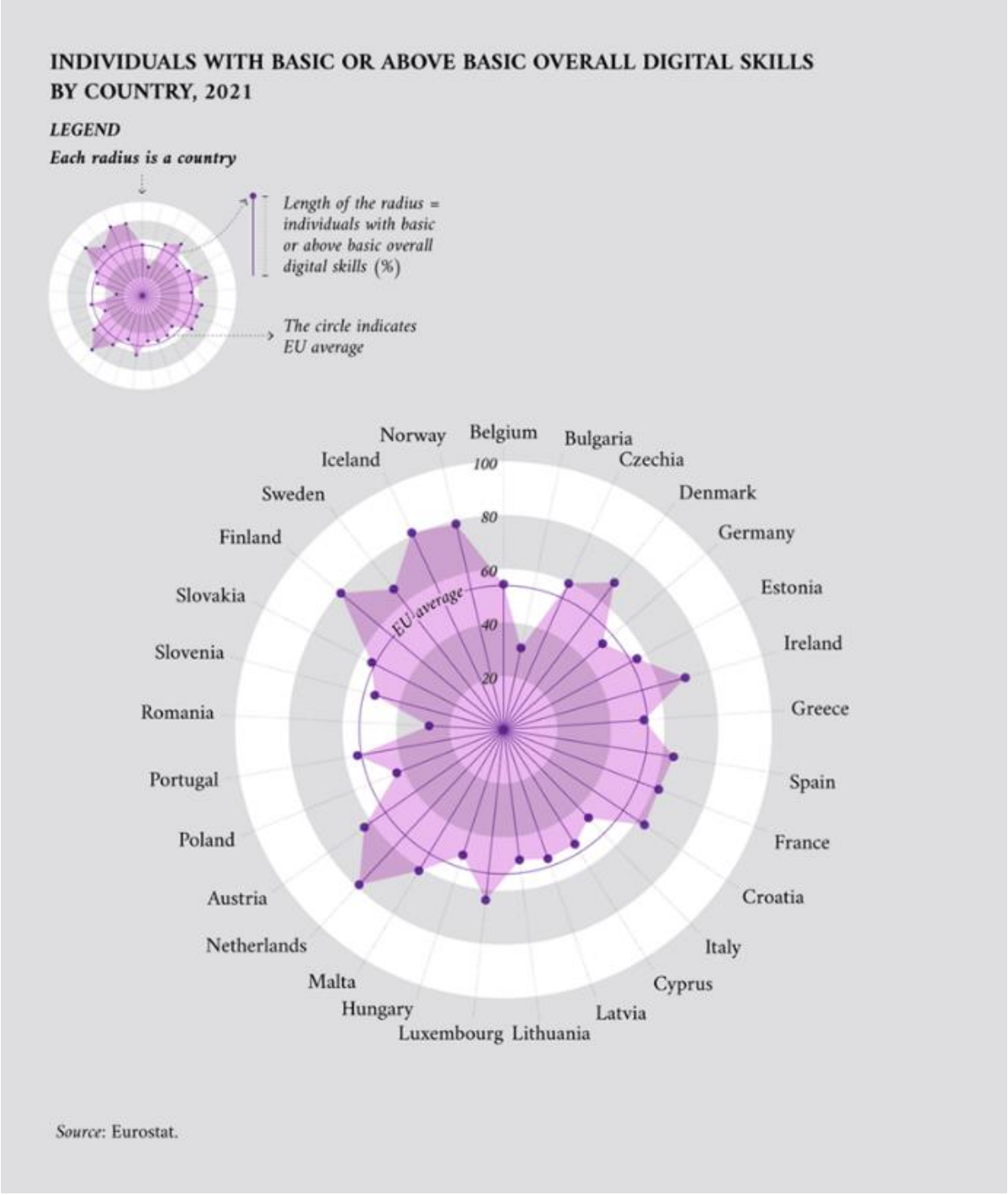


Fig.1 Digital competence among European countries

Apart from the fact that the job market has started to demanding more and more digital skills, transformation has also helped learners to develop these skills as part of the learning process.

EXPOSITION/SUMMARY

Digital learning engages multiple senses, stimulating a faster and more efficient absorption of information.

The subject of digitization began to become more and more topical and suddenly publications like the one by Johnson & Mayer (2000) were considered more and more relevant.

It was immediately obvious that visual stimuli such as images, animations and videos can convey information more effectively than textual material. According to the meta-analysis by Johnson & Mayer (2000), who looked at 335 studies, this can result in an improvement in learning and recall of around 23%.

It has long been known that participants exposed to visual and auditory stimuli perform better on memory and attention tasks than those exposed to only one type of stimulation. (A study by Chabris & Kosslyn (2001).)

A study by Mayer (2001) found that multimedia presentations combining text, images, audio, and video lead to better comprehension and retention of information than presentations using only text.

Qick information processing, namely, training with video games improves cognitive functions related to attention, flexibility of thought and spatial perception. Green & Bavelier (2006) found that the human brain can process visual information more promptly than textual one, enabling a more efficient processing of visually presented data.

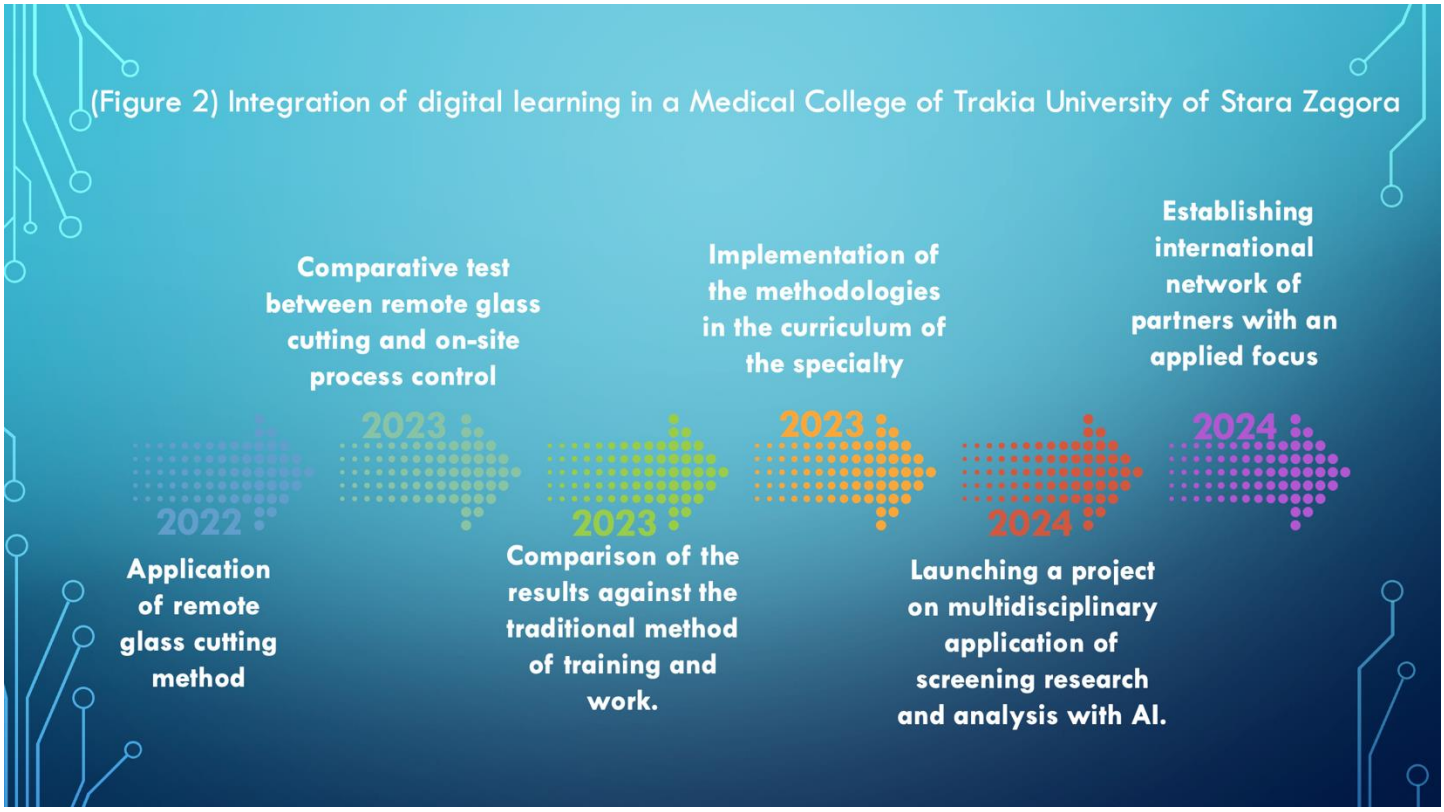
Students are becoming increasingly digital, and the fact that young people,who have grown up in digital environments spend significantly more time consuming multimedia content allows them to develop more effective strategies for processing information from different sources. (Pashler, 2001). It is not a novel idea that in this way their integration into the learning process is more purposeful and targeted.(Rideout & Foehr, 2010).

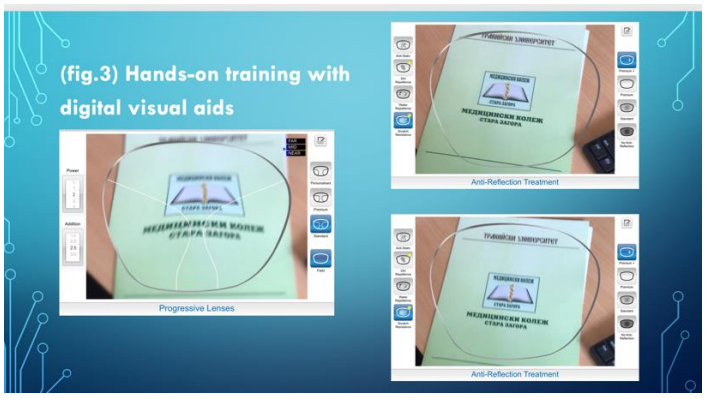
Having established all these scientific facts, it was apparent that we needed to integrate a digital learning process with a practical focus (Figure 2).

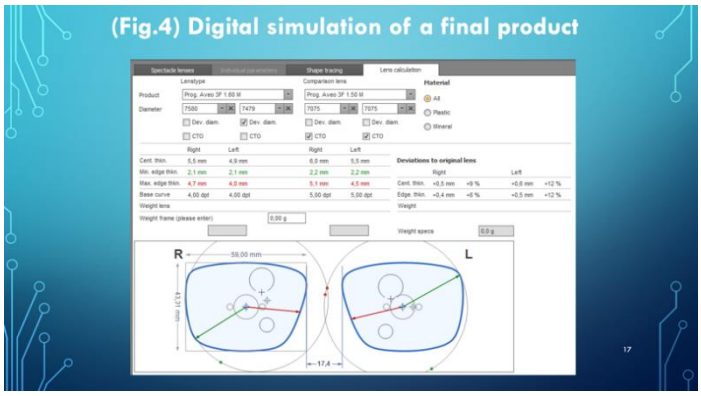
We teamed up with a high-tech dioptric glass manufacturing plant in Timisoara Romania and together presented an innovative methodology for remote optimization, ordering, generating and even cutting to shape frame of dioptric glasses lenses.We immediately added it to the curriculum, and after a few months we compared the methodology against the traditional ordering, optimization and production method.

The advantages of the digital ordering method are the reduction of human error, the reduction of ordering and production time, and the clear traceability of processes. Even the initial implementation investment pays back very rapidly from the elimination of production waste. After a few months, we visited with students the factory on site.There the disadvantages of the digital process were discovered - the possibility of creating a product that is not according to a catalogue is not eliminated, the order sent by a person is not checked for technical inaccuracies, etc. The most intriguing fact was that when students applied their fine motor skills into the learning process - namely to see, to participate in and touch the assembly line, their interest in the process increased manifold.

Upon our return to Bulgaria, we supplemented the process with digital measurement tools (Fig. 3), digital visual aids , and multiple digital teaching methods (Fig. 4).







A survey was conducted with different participants in the process: from the factory to students and counterparts, and the data was analyzed. We have established that 6% find learning solely with digital tools more appropriate, while 11% remain in favour of a non-digital learning process. The most important finding was that 83% of respondents supported the hybrid model of training - traditional training plus digital tools.

CONCLUSION/DEDUCTION

Digital transformation is not a replacement for traditional teaching methods. The aim is to improve the learning process and provide a better education for all learners.

The following steps in this future development: Initially, digitization of the results and their analysis with artificial intelligence, and subsequently - building a multidisciplinary system for the collection and analysis of the results.

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