István Lükő

About György Molnár's book: Pedagogy, innovation, technology, digital culture

The above-titled book was published by Typotex Publisher in 2022, with the subtitle *New Directions of Digitalization*. Important parameters: The book is 124 pages long and is divided into five main chapters. The second organizes the contents in 2 and the third in 3 subsections. The number of sources and references is impressive, as we find 94 books and journals and 14 Internet sources at the end of the book. Many of them are written in foreign languages and by non-Hungarian authors. It also shows the principle-theoretical soundness of this critical topic and its scientific-professional embeddedness.

The author and his professional background are also worth mentioning because this highlights the organic connection of the connective tissue behind the title, which comprises many acronyms.

György Molnár is a habilitated doctor, certified electrical engineer, engineering teacher, and biomedical engineer. He obtained his diplomas from the Faculty of Electrical Engineering and Economics and Social Sciences of the BME. In Eger, the author obtained rehabilitation in educational science at the EKKE. Based on his work performance as a professional, scientific instructor, he was appointed as a university professor in 2023 to his second job at the Faculty of Electrical Engineering of Óbuda University, where he performs the duties of dean of the faculty.

The "cradle" of the teacher-researcher work was the BME Department of Technical Pedagogy, where he carried out his work related to the use of ICT with the support of Professor András Benedek on several research topics also covered in this book. The department, which is regarded as a workshop of true innovation, developed numerous models and methods related to digital pedagogy and was the first to introduce independent subject education in Hungarian higher education. He wrote books and made it an independent subject in the final exam.

As a reviewer, István Szököl writes in the *Foreword*: "The novelty of György Molnár's work lies in the fact that he captures the changes that are currently taking place globally in the field of pedagogy and didactics with excellent sensitivity."

In the *Introductory Thoughts* chapter, the author lists the technological areas of the main directions: mobile communication devices and the new form of the Internet, the countless variations of digital platforms, the spread of artificial intelligence, the spread of embedded systems, and access to open-source services. Right here, at the beginning of the book, he draws attention to the need for radical changes in socialization and education.

In the chapter "*Educational challenges of sustainability today*," he discusses the UN's sustainable development goals, the EU Commission's index system (DESI) developed to monitor development, and the relationship between ICT and the information society. Livingston emphasizes that the use of ICT in

school "brings together" traditionally separate media and thus expands the range of possible times and places of learning.

In chapter 2 of *Digital Companies, Digital Economy*, he approaches the topics from several sides because this complex approach extends from the essence of the new concept of the digital economy based on "hyper-connection" to the transformation of work forms (telework) of the digital transformation to Internet businesses. He seriously states that the spread of sensors and decreased prices have brought about the "dominion" of software.

We can read the true genesis of the history of the origin of the concepts of Industry 4.0, the Fourth Industrial Revolution, on page 39, where it describes how the industrial-economic development program was timed for the Hannover Fair in 2011 and where the name revolution was not considered auspicious.

In Chapter 2.2, we can read about the concepts of individual, group, intergroup, organizational, and network learning, and we can see a model of this in Figure 4. The critical inclusion of many domestic and international references can also be highlighted here.

We can read about significant social extensions in chapter 3, entitled "*The Role of Digitization, digital citizenship and lifestyle*", because it describes the conceptual interpretations and good examples of countless countries and areas (law, public administration). Economic activity and private space merged, and the "shared economy" was created. It presents the possibilities of digital citizenship gov, government strategy, and organization development.

In the chapter entitled *Digital Education - Digital Learning and its Lessons*, we can first read about the principle-theoretical connections, from which I will now highlight the impact on schools and actors (students, teachers, leaders), which is divided into three categories. One is the positive social constructivist approach, the other is social pessimism (the superficialization of people and their knowledge), and the third is biological optimism. It also details the characteristics of digital learning and its specific development during the coronavirus.

In this chapter, he presents his own empirical research, which he conducted with an online questionnaire survey on a sample of 775 students within the framework of teaching the subject "I will be an engineer,". The results are shown in Figures 7-10, illustrated through the diagrams of figures. In this study, the central issue was the measurement of attitudes related to good practices and elements of experiential pedagogy.

Figure 12 in chapter 3.3, which depicts the innovation performance of EU countries, is noteworthy.

The fourth but important topic is covered in a relatively short chapter because it concerns the future impact of robotics and artificial intelligence. His 13th diagram, edited by himself, shows the evolution of the Web, which is based on Rubens' findings and collects the operational activities of extraction, interpretation, analysis, and structuring in the Web3 section.

Chapter 5, which is the longest, about 40 pages, explains five areas in the subchapters that are decisive regarding digital pedagogy's practical significance and methodology. The role of the new learning environment and the role of visuality (AR-VR-based solutions) are all about many new methodology-technology application solutions, which the author also incorporated into his own teaching and research work. In chapter 5.4, he also presents his investigation of using virtual and digital tools on 100 people.

With his photos, he illustrates the use of the devices with a QR code, VR glasses, and a screenshot of a four-stroke engine.

Chapter 5.1 is significant, in which he writes about the change of dominance in educational science. Building on József Nagy's three-stage change of dominance: "In my opinion, a fourth change of dominance is beginning today, which can also be called the dominance of mobile learning and digital pedagogy." (page 76)

In his concise and correct summary, he emphasizes that optimization and efficiency issues of fully electronic educational solutions require more complex infrastructural conditions.

György Molnár managed to write a book that, despite the appearance of mosaicism, summarizes the situation of digitization very sincerely and succinctly. At the same time, he explores it with great professional and scientific sophistication and identifies new directions. In his work, which is based on the incorporation of extensive domestic and international literary sources, we find a combination of several disciplines and approaches supported by three of his research.

The author has significantly more studies and development models in space and time, which we expect him to organize and add longitudinally to a more extensive monograph. It could be one of the directions for continuation.

It would also be particularly desirable to have a work that summarizes and systematizes the diverse principles and design tools of the most important ICT technologies and digital platforms for those with multiple levels of competence interested in the topic.

The reviewer also heartily recommends it to anyone interested in the topic, similar to what was written by the author and the professional reviewer.