Digitalna preobrazba sistema osnovnošolske vzgoje in izobraževanja

Aleksandar Dončev, Eva Jereb

Univerza v Mariboru, Fakulteta za organizacijske vede, Kranj, Slovenija
aleksandar.doncev@student.um.si, eva.jereb@um.si

V članku bomo govorili o digitizaciji, digitalizaciji in digitalni preobrazbi osnovnošolskega sistema vzgoje in izobraževanja, ki povečuje zahteve po novem znanju in odgovorni uporabi IKT ter večji digitalni bralni pismenosti učencev v osnovnih šolah. Prikazan bo tudi pogled na odgovorno rabo IKT s strani učencev, ki se zaradi povečane uporabe tehnologije v osnovnih šolah soočajo z izzivi neuravnotežene uporabe digitalnih naprav. To raziskovalno področje postavlja pomembna vprašanja o prihodnosti prenove osnovnošolskega izobraževanja in vplivu digitalnih tehnologij na naš osnovnošolski izobraževalni sistem, odgovorni rabi tehnologije ter uveljavljanju Akcijskega načrta Evropske komisije za digitalizacijo izobraževanja.

DIGITAL TRANSFORMATION OF THE PRIMARY SCHOOL EDUCATION SYSTEM

ALEKSANDAR DONČEV, EVA JEREB

University of Maribor, Faculty of Organizational Sciences, Kranj, Slovenia
aleksandar.doncev@student.um.si, eva.jereb@um.si

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In the article, we will talk about digitization, digitalization, and digital transformation of the primary school education system, which fulfilled the requirements for new knowledge, responsible usage of IT, and greater digital reading literacy of students in primary schools. It will also present a view of the responsible use of IT by students who face the challenges of the unbalanced use of digital devices due to the increased use of technology in primary schools. This research area raises important questions about the future of the renewal of primary school education and the impact of digital technologies on our primary school education system, the responsible use of technology, and the implementation of the European Commission's Digital Education Action Plan.

1   Introduction

The primary school education system is undergoing significant transformations dictated by rapid technological changes. In 2008, the European Parliament and the Council of the European Union defined eight key lifelong competencies, including digital literacy, which must be developed at the class level of primary school education. Integrating digital literacy into lessons plays a key role here, with teachers being the critical bearers of this process. Teachers must cultivate a positive attitude towards digital technology and be properly digitally literate to integrate it into their teaching successfully. The use of digital technologies in primary schools brings a lot of new challenges, such as lack of appropriate equipment, lack of teacher training, and difficulty ensuring standardized data security. Integrating digitalization into the learning process requires a proper plan, teacher training, and the provision of appropriate equipment to take advantage of its benefits. More detailed inspections of the accreditation of learning content are also being introduced, thus creating a more transparent syllabus and curriculum.

2   Traditional and digital reading literacy

Addressing the challenges brought about by the digital transformation of Slovenia's primary school education system provides an opportunity for a continuous transition from a traditional to a modern education system and, thus, the improvement of digital reading literacy. The traditional primary school education system that we currently know faces changes and reforms. The modern education system's demand for new knowledge and greater digital reading literacy is increasing. In recent years, with the introduction of digital technologies in Slovenian primary schools, the number of digital learning materials available to teachers and students has increased significantly. At the same time, specific challenges have arisen in their use, such as differences between teachers, the lack of training of teachers to work with digital learning materials, and the lack of appropriate devices and equipment in schools.

The development of digital technology has influenced the transformation of the way society acquires, stores, and transmits knowledge. As the central information carrier, the book faces changes due to informational progress. In the modern era, computerization is at the fore through various media, emphasizing the difference

between reading digital and printed texts. Digital texts, enriched with visual elements, enable different connections between text segments and other components (Grosman 2009, pg. 21).

This allows the reader to shape and adjust the sequence of the text according to their interests. In contrast, printed text that is read linearly remains unchanged. The reading of printed texts is thus predetermined and linear. Digitization thus brought about a considerable difference between the two ways of reading (Grosman 2009, pg. 22-24).

2.1   Digital media and reading literacy in the primary school classroom

A turning point in the history of text carriers is the shift from printed texts and books to digital texts and media. Changes in text carriers are related to the new meaning and meaning of knowledge in society. This process increases the number of texts while the texts have become shorter. This led to changes in the way of reading. Shorter texts are read quickly or skimmed over, while books and more demanding texts require in-depth reading. Such reading is cognitively more demanding, presenting a more significant challenge to the reader. Still, it also increases the understanding of the text, especially if it is read in printed form (Kovač and Van der Weel 2018, pg. 3-4).

Digital media in learning is not necessarily a better source of knowledge and learning than paper media. Using digital media requires an individual to do more than just read, as it also involves focusing and following the primary line of the text. It is a broader and more demanding process that goes beyond just reading. Therefore, dealing with digital text often seems more difficult than dealing with printed text. As a result of skimming, inexperienced readers can fall into the trap of superficial and unverified information and sources. Although deep reading of digital texts is possible, it requires more effort and experience (Barzillai and Thompson 2018, pg. 1 - 2).

Reading Research PISA (Programme for International Student Achievement) shows that students who read printed texts have better-developed reading skills (PISA 2022). The International Reading Literacy Survey PIRLS shows that such students also achieve better results in tests of reading digital texts (IEA PIRLS 2021). The

PIAAC (International Survey of Competence) research also deals with reading research but additionally focuses on the reading literacy of others. The findings show that Slovenia's reading skills are worse than reading literacy in other participating countries. There are also statistically significant differences in reading achievement in Slovenia, which are related to the level of education achieved (PIAAC).

It is essential to encourage the reading of printed texts in primary school educational institutions, but at the same time, meaningfully include digital texts. Digital content offers many texts but cannot be equated with an ideal means of learning to read. We must emphasize the importance of reading even before the child enters the educational system. Children's early childhood development has a significant impact on their ability to read. Exposure to letters, signs, text direction, and other literacy basics during this period can positively affect reading development. Reading together with parents brings into the child's consciousness the image of reading as an activity that attracts their parents' attention (Barzillai and Thompson 2018, pg. 3–4).

Parents play a crucial role in establishing a positive bond between them and the child, which gives reading a positive connotation. This positive attitude encourages the child's interest in reading literacy. Children deprived of such experiences may enter school with deficits in reading literacy. There is a possibility that this deficit will persist even in later periods of life (Barzillai and Thompson 2018, pg. 1–4).

3 Digitization, digitalization, and digital transformation

3.1 Digitization and digitalization

Although they seem similar at first glance, the concepts of digitization and digitalization have different meanings. They are often confused in everyday speech, which leads to incorrect use of these terms.

Digitization involves converting analog information into digital form. It converts physical objects or information (such as text, images, and sounds) into digital data that electronic devices can easily store, process, and transmit. For example, scanning paper documents to create digital copies, converting physical photos to digital images, or converting analog audio recordings to digital files.

On the other hand, digitalization is a broader concept beyond simply converting analog information into digital information. It involves using digital technologies to change business processes, models, and systems. Digitalization aims to leverage the capabilities of digital technology to improve efficiency, productivity, and overall performance. For example, it is implementing digital tools and technologies into business operations, such as using cloud computing, data analytics, and mobile applications to streamline processes that improve decision-making.

Therefore, it makes sense to distinguish the conversion to a digital format (digitization) from the introduction of digital technologies in the broader process and changing the way of operation (digitalization) (Gobble, 2018, pg. 56-59).

Gartner's Dictionary for Information Technology's definition of digitization describes digital technologies as the transformation of analog to digital process, also known as digital enablement. Digitization involves converting analog information into a digital format without altering the fundamental nature of the process. It essentially enables the representation of data, media, or processes in a digital, computer-readable form, preserving the content while facilitating more efficient storage, transmission, and manipulation. (Gartner Glossary). In other words, it is to change the process into digital form without changing the subject.

This digitalization perspective emphasizes the transition process to digital business and introducing digital technologies into business practices. In contrast, some scientific authors see digitalization as a broader concept that affects various areas of society, including social, economic, and organizational aspects. According to this interpretation, digitalization involves transforming multiple aspects of social life based on digital communication and media infrastructures. This concept covers the macro level of social structures and practices. There are different views on digitalization - one that focuses on business models and another that covers broader social and organizational aspects. (Brennen et.al. 2014, pg. 1-11).

Digitalization of learning processes, content, and the use of ICT in primary schools

Digital technologies are increasingly present in primary schools, but their use still varies among individual teachers. Digitalization of learning processes and content is being implemented gradually in Slovenian primary schools, emphasizing teacher

training. (Radovan, 2022, pg. 1). The Slovenian Ministry of Education and its Digital Education Unit offer and have conducted various trainings and education that help develop teachers' digital skills.

Digitalization in primary school education thus primarily refers to the use of innovative ICT in the learning process. The implementation of digitalization provides new possibilities and opportunities for improving the quality of education and the development of new teaching methodologies, which can contribute to tremendous learning success. Integrating digital technologies into education with the help of the gamification aspect can increase performance and improve the students' motivation, strengthens their critical thinking, and enable better and easier adaptation of the learning process for different students (Radovan, 2022, pg. 1).

3.2   Digital transformation

Digital transformation marks a fundamental change in an organization that affects strategies and organizational structure. This term was coined in the business world, so its definitions focus on economic aspects. Digital transformation encompasses systematic socio-technical changes made possible by resources and work processes that are becoming increasingly digitized. It is a continuous process of adapting the organization to the fundamentally changing digital environment to meet the digital expectations of customers, employees, and partners. Introducing digital technologies into business processes is a small part of the organization's digital transformation. Successful digital transformation requires a focus on two complementary areas of activity: transforming the customer proposition and transforming the business using digital technologies to increase customer interaction and engagement (Kovač, 2001, pg. 14-15).

Digital transformation of the primary school education system

Introducing information and communication technology (ICT) into the educational process is a dynamic field constantly developing in theory and practice. The concept of "digital transformation" refers to various processes and recommendations for integrating technology in schools, especially at the political level. The action plan for digital education prepared by the European Commission directs these processes which is crucial to digitalizing the educational process (Radovan, 2022, pg. 3).

The European Commission adopted the Digital Education Action Plan (ANDI) in 2020 to promote high-quality, inclusive, and accessible digital education in Europe. ANDI focuses on two key strategic priorities: fostering the development of a highly capable digital education ecosystem and enhancing digital competencies for digital transformation. The plan was collaboratively developed with various stakeholders, including students, teachers, school principals, professors, researchers, union representatives, and policymakers (Radovan, 2022, pg. 3-4).

During the formulation of ANDI, several critical shortcomings were identified, such as the lack of digital competencies among learners and teachers, unequal access to digital resources, insufficient solutions for the didactic use of digital technologies in teaching, scattered projects without proper collaboration, and national coordination, and the need for the establishment and enhancement of projects addressing the pedagogical digital competencies of teachers. ANDI emphasizes the importance of an interdisciplinary approach and close collaboration with stakeholders at the local, regional, national, and European levels for the successful digital transformation of education (Radovan, 2022, pg. 4-5).

The term "digital transformation of the primary school education system" refers to systematic socio-technical changes made possible by digitized resources and workflows. In the context of primary school education, digital transformation is defined as a term used primarily at the political and decision-making level to describe various processes and recommendations to governments regarding integrating technology into schools (Radovan, 2022, pg. 4).

The distinction between the processes of "digitization," digitalization, and "digital transformation" is crucial in understanding the strategies. Digitization describes the transformation of physical aspects of education into digital forms, including the computerization of education. Digitalization involves the transition to digital processes of data transmission and processing. In contrast, digital transformation permanently impacts social and business processes and represents a profound transformation of existing educational processes with the help of digital technologies. The purpose of digital transformation is not only to go digital but also to improve teaching and learning processes and create a more inclusive education. This concept has broader goals than computerization and substantially impacts

different levels of education, from macro to micro level. (Radovan, 2022, pg. 4-5 after Schmidt and Tang, 2020, pg. 1).

All three definitions conclude that digitization or computerization refers to transforming the physical aspects of primary school education into digital forms. Digitization means the system's transition to digital data transfer and processes (Gobble, 2018, pg. 56-59). Digital transformation has a more profound impact on social and business processes and includes transforming primary school education processes with the help of digital technologies. It represents a continuous process of adapting the system to digital changes, which leads to a complete transformation of education and training by the new opportunities and requirements of digital technology.

4   Responsible use of ICT in primary schools

The increased use of digital technologies in primary schools also refers to the responsible use of ICT in learning. Internet use in schools opens new opportunities, but it also presents a series of challenges, including students' deviant behavior. This can manifest itself in various ways, such as cyber-harassment, inappropriate online communication, extortion, identity theft, spreading false information, and more. Deviant behavior of students in the digitalization of primary school education can also manifest in addiction to digital devices and games, which can affect students' academic success and social and emotional aspects.

In addition, it is essential to provide adequate infrastructure and equipment in schools to ensure equal opportunities for all students. However, there are concerns that over-reliance on digital technologies could have a negative impact on children's social skills. These can also help improve the learning process, but it is essential to use them wisely. This means they should be used to improve the learning process, not just because they are available. Nevertheless, specific challenges remain in using digital technologies in the learning process, such as time management problems and questions about the suitability of some digital tools for children.

The challenges include adapting teachers' teaching to modern technologies, including knowledge transfer and moving away from traditional teaching methods. Parents face less time for a personal approach due to the increased use of technology.

In contrast, children face the challenges of excessive use of digital devices and the impact on their psychophysical state. The problematic issue also relates to physical and cyber violence, which can occur because of excessive use of technology, and to society's attitude towards parents who reject the increased use of IT by their children.

5   Conclusion

In the digital transformation of the primary school education system, cooperation between teachers, parents, and experts in digital literacy is crucial. Joint efforts can contribute to creating guidelines and recommendations for the safe and high-quality use of digital technologies in educational processes. All the above contents show a need for more responsible use of ICT by elementary school students in digitalizing the educational system and introducing appropriate measures for monitoring students' responsible use of ICT in the elementary school education system. When introducing digital technologies into the education system, students, teachers, and parents must be aware of the potential risks and dangers that the use of the Internet and digital devices can bring. To this end, promoting awareness of the safe and responsible use of technology and teaching students the importance of ethical values and correct behavior online is necessary.

To achieve a balanced relationship between digitalization and traditionality in the learning process, it makes sense to consider creating new subjects that would enable a gradual change in mindset and perception of the new or modern concept of digital transformation of education. This area of research raises important questions about the future of education and the impact of digital technology on our primary education system and society.

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