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DIGITALIZATION OF PRIMARY EDUCATION AS A FACTOR OF THE FORMATION OF INFORMATION AND DIGITAL SKILLS OF PRIMARY SCHOOL STUDENTS

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Abstract:

The article explores the concepts of 'information and digital skills'—a set of abilities involving the conscious processing of digital information, including online communication, and the selection of appropriate ICT tools and algorithms to fulfill specific requests. Additionally, it delves into the 'digitalization of primary education,' which is a component of overall educational digitalization. This process involves the digitalization of information and communication within the primary education sector. It has been identified that the information and digital skills that should be promoted in pupils aged 6-10 include the following groups: the ability to search for and evaluate information, the ability to select and use digital tools, online interaction skills, and the ability to independently identify and solve basic technical problems. The article establishes digitalization as a key factor in shaping the information and digital skills of primary school students. This is attributed to the fact that the digital transformation of primary education serves as a condition, catalyst, and driving force for fostering and enhancing the abilities of younger students. These abilities encompass searching for information on the Internet, critically evaluating digital data, selecting the necessary digital tools to accomplish learning tasks, and utilizing digital tools for online communication, 'netiquette,' as well as creating and editing digital products. Moreover, it involves behaving safely on the Internet, independently identifying and resolving basic technical problems, and more. Research has delved into the impact of digitalization in primary education on the development of information and digital skills in young students. This influence is discerned through the primary directions that effectively facilitate the digitalization of primary education. These encompass the regulatory and legal dimension, professional competence, technical and technological aspects, and the cultivation of subjectivity in

primary education students.

Keywords: digitalization of primary education, directions of effective provision of digitalisation of primary education, information and digital skills, formation of information and digital skills, primary school students, junior school students.

Introduction

Today, all spheres of life in Ukraine and the world are undergoing digital transformation of social processes, including education. Scientific and technological progress, along with the ability to use its products and navigate information processes, are essential skills for primary school students. Digitalization is a key factor in the development of primary school students' information and digital skills. This is because the digital transformation of primary education serves as a condition, reason, and driving force for the formation and development of primary school students' abilities, such as searching for information on the Internet, critically evaluating digital data, selecting the necessary digital tools to complete a learning task, using digital tools for online communication, understanding 'netiquette,' creating and editing digital products, behaving safely on the Internet, and independently identifying and solving basic technical problems.

This problem is reflected in the works of the following scholars: V. Bykov, N. Hrona, A. Gurzhii, N. Dementievska, T. Dovha, O. Mazko, N. Morse, O. Ovcharuk, S. Petrenko, K. Sinenko, O. Spivakovskyi, and others.

The main part

We understand information and digital skills as a set of abilities to consciously process digital information, including online communication, and to select appropriate ICT tools and algorithms to fulfill one's own request. The skills that should be fostered in students aged 6–10 can be meaningfully grouped into the following categories: the ability to search for and evaluate information (searching for information on the Internet and critically evaluating it); the ability to select and use digital tools (choosing digital tools necessary for completing educational tasks, selecting and using digital tools for online communication, creating and editing digital products); online interaction skills (understanding 'netiquette' and

safely navigating online environments); and the ability to independently identify and solve basic technical problems (detecting malfunctions in digital devices and independently resolving elementary technical issues) [2].

In the context of the globalization of social processes, we understand the digitalization of primary education as a link in the digitization of education and a process that involves transforming information and communication in this sphere into digital form. The main directions for effectively ensuring the digitalization of primary education include the regulatory and legal direction, the professional competence direction, the technical and technological direction, and the direction of subjectivity of the primary education learner. These directions define digitalization as a factor in the formation of information and digital skills in primary school students. [3].

The impact of the digitalization of primary education on the formation of information and digital skills in the personality of a junior schoolchild is determined by the regulatory and legal direction of its effective provision. This is because documents adopted at the state or regional levels, particularly those aimed at digital transformation in education, and those partially reflecting it, contain corresponding requirements for the level of formation of information and digital skills in primary school students.

In the adopted Concept of Development of Digital Competencies (dated March 3, 2021, No. 167-r), it is stated that one of the problems in the development of digital competencies is the absence of "uniform requirements for digital competencies in the education system." One of the main tasks and expected results of the Concept is the "development of comprehensive changes to legislation that will define digital education, digital skills, and digital competencies in various spheres of public life," including in the field of education. Such aspects of developing the directions of the state's activities pose new challenges to all participants in the educational process, including younger schoolchildren. They need to learn to be adept users of these specified digital devices and products, which will become mandatory in the elementary school curriculum.

The Ministry of Digital Transformation of Ukraine has developed the Draft Conceptual-Referential Framework for Digital Competence of Pedagogical and Scientific-Pedagogical Workers. Its final point is also directed towards education seekers, as it includes: "Formation and development of information and media literacy of students," "Formation and development of the competence of education seekers to create digital content," "Teaching students effective communication, interaction, and collaboration in the digital environment," "Formation of digital culture, digital security, and cyber hygiene of students,"

and "Facilitating the development of problem-solving competence in the digital environment for students." This, in itself, forms the basis for understanding the potential requirements for education seekers [5, c. 18–19].

The State Standard of Primary Education stipulates the mandatory formation of elements of information and communication competence for primary education seekers within the linguistic-literature, informatics, and other educational domains [7]. Achieving such results is only possible through the interaction of primary education seekers with digital information and devices designed for its processing.

The implementation of the professional competence direction in effectively providing the digitalization of primary education also contributes to the development of information and digital skills in primary education seekers. This is because primary school teachers in secondary general education institutions, who possess or have accessible opportunities to acquire information and digital competence and the methodology of its formation in primary education seekers, facilitate the transmission of their own experience in the field of ICT through interaction with students. A teacher who has access to enhancing professional competence through the system of professional development and self-education has the opportunity to ensure the comprehensive development of their competencies in the specified field of activity. A primary school teacher, possessing a system of information and digital skills, is capable of creating a digitized educational environment in the primary education institution, which forms the basis for the development of information and digital skills in younger students.

The digitalization of primary education involves the use of digital tools by educators to facilitate various tasks related to digital information and virtual communication. In carrying out their professional activities, primary school teachers in secondary general education institutions employ digital tools to create didactic materials and methodological developments for lessons, as well as to organize distance or blended learning. Working with online applications and PC software contributes to the development of the teacher's own creative initiative, as interaction with ICT allows not only for the creation of high-quality educational content but also ensures its appeal to primary education seekers.

Digitalization stimulates the formation of these personality innovations in the teacher of the first-level school. The reason for this is that the constant development of digital programs and products, along with various ways of using them during the educational process, is a result of the need to creatively implement didactic and methodological ideas during lessons. For example, the

development of tests in the form of a quiz in Quiz, the creation of an educational video segment in Zoom or TikTok for asynchronous distance learning, etc.

In the context of the digitalization of primary education, a primary school teacher in a secondary general education institution must be aware of the essence of the problem in a familiar pedagogical situation. This is because the use of a digital service may be suboptimal: the expenditure of personal resources (energy, time, money, etc.) may not be relevant to the effectiveness of forming the necessary competencies in younger students. Accordingly, there is a need to consider the functional potential of digital tools, taking into account whether a tool is capable of fully realizing defined tasks and whether its most effective option is utilized.

In the educational process, educators sometimes apply products whose origin and use were not previously associated with the field of education: they explore new functions of digital tools. For example, primary school teachers in secondary general education institutions use infographics during "Exploring the World" lessons, which were initially used as a graphical representation of information for visualizing processes and objects in scientific research in the natural sciences or in journalism. They also actively use video conferencing applications like Zoom, Google Meet, Microsoft Teams, etc., which were previously prevalent in the business industry but are now extensively employed for organizing blended or distance learning in the primary school educational process, considering the current conditions.

The technical and technological direction of the digitalization of primary education also influences the development of information and digital skills in primary education seekers. The environment in which the formation of key competencies takes place is crucial. By providing educational institutions with ICT tools for planning and organizing the educational process, access to quality educational content and electronic document management systems, as well as highlighting sequences of operations with digital devices and programs as ways to optimize and digitize the educational process in primary school, external conditions affect the formation of new developments in the personality of a younger student. The presence of personal gadgets and developed algorithms for working with them in primary education seekers also has a significant impact on the development of their information and digital skills. Constant interaction with digital tools allows younger students to assimilate elementary digital knowledge based on logic and repeated practice. They acquire systematic or fragmented actions and operations, the ability to self-check the correctness of their execution, and the motivation to select and apply digital tools for specific tasks.

An example of implementing the technical and technological direction of digitization in primary education is providing primary education seekers with access to online tools during the use of digital forms for visualizing educational material in the educational process. This involves developing a sequence for creating these tools and fostering the skills to work with them in younger students. The educator either produces a digital object and organizes its use during the lesson, creates it collaboratively with students, or utilizes a pre-made product for analysis during the lesson.

The implementation of the technical and technological direction of digitization in primary education involves providing access to applications for digital visualization of didactic material (tools for creating infographics, mind maps, tag clouds, memes, comics) and developing skills in younger students to work with them. This, in turn, contributes to the formation of a system of information and digital skills.

The created conditions for the quality formation of information and digital skills in younger students enhance their motivation to acquire these skills, engage in learning in general, and foster cognitive activity. The environment in secondary schools, particularly in classrooms, should be educational-developmental (EDS), which, as noted by O. Pysarchuk, consists of four structural components: spatial-subject, socio-communicative, psycho-didactic, and cognitive-motivational. Within the framework of the technical-technological direction of digitization, the spatial-subject component of EDS plays a crucial role, ensuring the development of information and digital skills in younger students. It involves the presence of objects (computers, smartphones, computer mice, printers, projectors, thematic images, video fragments, instructions, tips, etc.) and the planning of the school's interior (classroom zoning: communication center, discovery, silence, materials, news, reading, teacher's area, etc.), the use of which is necessary for the formation of skills to work with digital information and tools [8, c. 38–39].

The implementation of the subjectivity direction in the process of digitizing primary education also ensures the aspectual development of information and digital skills in younger students. This involves shaping the ability of younger students to be active participants in educational interactions: "teacher–student," "student–teacher," "student–other student," "student–students," "students–student," "student–self," using digital tools as communication agents. It also includes fostering their ability to independently acquire information and digital knowledge, skills, and competence in general, the ability to reflect on their own creations and actions, and conscious aspirations and motivation to interact with digital information and communicate online within the educational process of primary school in secondary education institutions.

The socio-communicative component of the educational and developmental environment (ORS), which influences the formation of information and digital skills in primary education seekers, involves the exchange of information, assimilation of class values (conformity, universalism, individuality, independence, achievement, a critical approach to knowledge acquisition, time, personal space, etc.), orientation of views and opinions on the topic, and the development of safe behavior on the internet, among other things. The psycho-didactic component of the educational and developmental environment (ORS) encompasses the development of their learning and cognitive activities when working with digital information and digital tools, taking into account the specifics of knowledge acquisition and activities by younger students. This involves their perception, comprehension, understanding, generalization, consolidation, application, and cognitive processes (sensation, perception, memory, thinking, attention, imagination, speech). It involves the formation of information and digital skills in younger students through the use of thematic educational and developmental tasks, creative exercises related to the acquisition of algorithms for working with technology and data, analysis of digital information sources, and so on. The cognitive-motivational component of the educational-developmental environment (ORS) contributes to individual emotional comfort, a positive attitude towards learning, an atmosphere of trust, cooperation, and co-creation, the ability to formulate meaningful goals, perseverance, and independence, etc. It is achieved through the application of "interactive teaching methods, problem situations, communicative exercises, creative tasks" aimed at working with ICT tools and digital information, and more [8, c. 39–40].

Given the above, subject-subject interaction during the educational process, provided the use of digital tools, is intended to implement general or partial virtual communication. This represents a specific form of communication in which "communicants interact with each other at a certain distance using electronic pages or specific programs" [1, c. 421]. Communication among younger students, educational staff, institution administration, as well as leaders and employees of educational institutions at various levels horizontally and hierarchically, mostly occurs in a combined format, utilizing tools for both face-to-face and digital communication [3].

To successfully foster digital culture, digital security, and cyber hygiene in primary education seekers, it is necessary to create conditions in primary schools where not only teachers but also students act as subjects of the digitization of the educational process. Yes, a student, while being positively influenced by the teacher, also exerts an educational impact on their classmates, the teacher, and themselves. In order for a primary education seeker to fulfill the role of

an educational process subject during digital transformation, which involves developing their information and digital skills, they must possess the ability to learn, reflective thinking, and sustained learning motivation [3; 6].

Conclusions

Digitalization of primary education, understood as a component of educational digitalization, involves the transformation of information and communication in this field into digital form. It serves as a factor in shaping the information and digital skills of elementary school students. This is because the digital transformation of primary education is a condition, cause, and driving force for the formation and development of the ability of elementary school students to search for information on the internet, critically evaluate digital data, choose necessary digital tools for educational tasks, select and use digital tools for online communication, practice "netiquette," create and edit digital products, behave safely on the internet, independently identify and solve basic technical issues, and more. The impact of digitizing primary education on the formation of information and digital skills in the personality of a young student is determined by the main directions of effective provision of primary education digitization. These directions include the normative-legal direction, professional-competence direction, technical-technological direction, and the direction of the subjectivity of the primary education learner.

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