# The Essence of the Professional Training of Elementary School Teachers in the Context of Society Informatisation

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**Abstract**: This article studies the problems of the essence of the professional training of elementary school teachers in the context of society informatisation. It is accentuated that a future elementary school teacher should use the modern technology, have a high level of digital competence formedness. It is studied that the foreign higher educational institutions had experiments conducted on the use of platforms for online meetings and websites development at the beginning of the XXI century. It is indicated that the skill to interact in different environments, to share the knowledge, to form a new communication, to correct the information is one of the advantages of the information and communications technology from the students` viewpoint. The author emphasises that the outbreak of COVID-19 incited lecturers and teachers at higher educational institutions to arrange the distance education as an alternative to the intramural form of study. It is ascertained that students appeared to be ready to develop their own pedagogical competence during their online education. The article shows that digital competence includes three measurers: technical skills, cognitive skills and ethical knowledge. The author outlines the ways for forming digital competence in attendees of educational institutions, presents some educational programs, e-sources that an elementary school teacher can use when organising the educational process. It appears that the factor of successful use of the information-communications technology is an adequate number of computer laboratories and appliances, broadband Internet access.

**Keywords:** *Professional competence, informational competence, information and communications technology, elementary school, digital literacy.*

## Introduction

Nowadays the society development is closely related to information technology that is integral to different aspects of human activities. Thus, there is a need for a young specialist who is an expert in his profession, can quickly adapt to modern innovations, easily solves professional tasks, and is capable of self-study and self-improvement. From the viewpoint of N. Olefirenko (2015), the requirements to the present society are caused first of all by the high-speed scientific and technological progress, increasing scope of scientific information to be learned quickly in the course of studying.

Presently, digital competence ranks high in professional competence of elementary school teachers, as this particular skill helps an educator to achieve success in the profession, to be competent in the media landscape, to apply professional skills, and to make major decisions. Therefore, it is undeniable that the professional training of a future educator is based on the innovative teaching approach at a higher educational institution.

The paper of N. Olefirenko (2015) states that teachers and lecturers of higher educational institutions should pay special attention to technological facilities of the educational process, use e-sources for students to understand the didactic essence of educational e-means.

The reform initiated in 2017, which is based on the concept of the New Ukrainian School, new State Standard is of special significance for the quality training of future teachers, prescribes new approaches to students` education; and the main is a motivated teacher, who is a driving force behind the key reform of the Ministry of Education and Science of Ukraine.

So, we should first find out meanings of the concepts 'competence' and 'responsibility'. Asreported by A. Khutorskoi (2009), we learn that 'competence' is a student`s acquisition of a particular responsibility that comprises his or her personal attitude to it and the object of activity.

The article of L. Petukhova (2009) states that 'competence' is a capability and readiness of a person to implement the system of knowledge, skills, habits, knowing how to solve tasks under certain conditions with possible consequences, responsibility for his or her own actions.

So, competence is combined knowledge, skills and habits assisting a man to successfully develop and use the knowledge throughout his or her life.

As far as is known, the European Parliament and Council of the European Union identified digital competence as one of the key ones in 2006.

We can find the interpretations of the core of the concept 'informational competence' or 'digital competence' in the researches of O. Spirin (2009), J. Krumsvik (2013), A. Ferrari (2012).

O. Spirin (2009) defines 'informational competence' as an individual`s capability to use informational technology for delivering and acquiring the information in order to meet his/her individual needs and social requirements to the formation of general and professional specialised competences of a human.

We should pay attention to the studies of J. Krumsvik (2013) who stated then that digital competence was of concern to and alerted educators. The author gave an explanation of this term: 'digital competence' is an educator`s skills to use the information and communications technology strategies at the lesson. Furthermore, he proposed a model of digital competence for teachers and learners, which was designed on the basis of empiric studies of 2004-2012. He also accentuated that educators should use innovation technology, skilfully select and assess studying resources.

There is an interesting publication of A. Ferrari (2012), where the author provides the results of his research of digital competence. He emphasises that digital competence is crucial, as it is the one that allows other competences to form. Nowadays, to be digitally competent means to know how to use mass media, to search for information and to critically select what is needed, to communicate with others remotely by means of digital tools and software. All these capabilities belong to different disciplines: media researches, information science and communication theory. So, from the viewpoint of A. Ferrari (2012), 'digital competence' is an assemblage of knowledge, skills and habits (including capabilities, strategies, values and awareness) requisite in using information and communications technology and digital media to do tasks; to solve problems; to communicate; to manage information; to cooperate; to create and to share what is needed.

Therefore, digital competence entails the confident and critical use of information and communications technology for receiving information, storing, presenting materials in the working process, while resting and communicating in common networks via the Internet. Thus, digital literacy is understood as a skill to process and use information on a technical device.

## Formation of information and communications competence of future elementary school teachers

Digital competence is an important skill for people, especially for students in the XXI century, as it can improve the education and promote the active participation and interaction with digital spaces.

It should be pointed out that S. Scott (2015) accentuates in the journal 'Working Papers' that using the model of information transfer through lectures is ineffective for forming the competence in students in the XXI century. Students need modern skills to be formed, such as critical thinking, capability to communicate productively, entrenchment of innovations, solving of tasks by agreeing. Thus, education needs change too in order to develop new competences of contemporary students. The traditional approaches oriented at remembering and applying information do not assist in students` critical thinking and independence progressing. So an educator should learn about students` abilities, find out a child`s needs and then plan the using of teaching strategies and arrange the teaching process. Further, attention should be paid to the educational environment too, which also improves the quality of study and promotes the development and digestion of competences.

The study of G. Gonseruk (2019) should be mentioned. She accentuates that the efficient educational process can be only by means of modern technology. Definitely, the author also says that a contemporary educator should have a high level of formed digital competence.

A. Calvani (2009), author of the article, believed that digital competence included three dimensions, i.e. technical skills, cognitive skills and ethic knowledge. Technical skills comprise visual literacy, understanding of technological concepts and operative knowledge for solving general technological problems. Cognitive skills are shown in a user`s ability to select, interpret, assess and order the structured data. Ethic knowledge regards the users` capability to interact with others through digital media in the Internet.

We should pay attention to the post of V. Kineliova (2020), where the author says about the good of information and communications technology that assists students in obtaining the higher education nowadays; every graduate also acquires the professional workmanship within his or her intelligence level.

The problems of the training of a future elementary school teacher for using interactive technology in his or her professional activities were studied by Yu. Kobiuk (2016). The author emphasised that a need would arise to change strategic, global objectives of the pedagogical education; presently, the main strategy of higher educational institutions is development of a student`s personality.

The article of N. Shustova (2016) brings a focus on the systematic practice of using the Internet technology in the professional training of future elementary school teachers for students to be able to quickly learn different types of software.

The use of information and communications technology at higher school is noted in the article of the writing group of lecturers chaired by B. Silva (2003). The researchers conducted an experiment for two groups of future teachers: the first one – they studied the use of information and communications technology at higher educational institutions through the model built on the common activities in the Internet; the second one – they were designing a platform arranging the education with students. So, the experiment rules were devised for the participants:

- a lecturer can provide support by means of the Internet;
- students use the forum for sharing and discussing their ideas and suggestions;
- students communicate with one another, with a lecturer by e-mail.

The other group worked on the website development, so they also communicated by means of forums and e-mail.

On the run, there were difficulties faced by students – access to the computer, Internet and network overload related to a low quality of the national telecom network. For the common work in the Internet to be productive, it should be properly arranged too: to accurately plan in advance, to structure the interaction forms, to stick to the curriculum, to discuss the activities, to set a precise goal, to plan a schedule for completing tasks. Optionally, the group could choose their speaker (Komogorova, 2021; Melnyk, 2019; Melnyk, 2021; Nerubasska, Palshkov, & Maksymchuk, 2020; Nerubasska, Maksymchuk, 2020; Sheremet, 2019).

The following was among the advantages of information and communications technology identified by the students: flexibility of the time dimension that makes it possible to communicate with batchmates and lecturers (teachers) at any time regardless of the place of stay. The disadvantages of information and communications technology include the

need for the real-life communication that is supplemented by the emotional colouring and does not substitute the asynchronous communication.

Therefore, these two experiments have proved that the use of information and communications technology has the potential for upgrading the pedagogical education at higher school, and the studying quality increases subsequently. The use of electronic resources has an influence not only on lecturers and teachers at higher educational institutions, but students as well, as it gives an incentive to interact in different environments, to share knowledge, to build a new communication, to correct information by updating it to the contemporary form.

The paper of M. Svensson (2015) is dedicated to the studies in the field of informational and digital technology, where it is emphasised that it is highly required to develop skills and to form knowledge, to introduce methods and ways of using information and communications technology to students of pedagogical higher institutions. In this regard, future teachers should advance their knowledge for having an adequate digital competence based on the combination of technological skills, expertise and methodological knowledge. The author carried out a research with lecturers and teachers of higher educational institutions in Sweden and Spain with regard to the students` apprehension of digital competence and its use in their future profession. The results proved that future elementary school teachers have enough competences for applying information and communications technology in the educational process.

In the article the author K. Shamunova (2020, p. 125) gave a right remark, 'Despite the present scientific works, an outstanding problem of use of electronic educational sources at higher educational institutions for forming the preparedness of future elementary school teachers to use them in the pedagogical practice is not studied well in the scientific literature these days.' In her publication it seems that the author is worried that the mechanism of use of electronic sources in the elementary education was deficient then and required a system approach to it.

After the COVID-19 pandemic came, digital technology became extremely important for higher educational institutions in spring 2020. This is what the author E. Heidari et al. (2021) emphasised in another article. The COVID-19 pandemic caused the instance of remote study in the education, i.e. higher school lecturers and teachers had to engage students in the online study and thereby improve digital competences of future teachers first and foremost. Certainly, the degree of education of students greatly depends on

digital educational spaces as well as competences of students themselves in using these spaces.

It has been established that students are more interested and motivated with digital spaces, as electronic resources foster and prompt the autonomous study. With the remote study students` motivation increases: they have an opportunity to attend more educational events in view of their interests and preferences. This form of study is more flexible in the studying schedule and style. Therewith, the energetic and mental stamina, persistence help to overcome difficulties in studying that have arisen earlier.

The article of O. Mukoviz (2018) proposes some options for future elementary school teachers for arranging the remote study, highlights the efficient use of computer devices and application of information and communications technology. In this research the author asserts that the remote study entrenched in the educational process has proved that students at pedagogical higher educational institutions are ready to develop their professional pedagogical competence.

As known, higher school lecturers and teachers choose the Moodle platform for teaching, as it is not needed to spend money for it, it is easy for an educator and students to learn it, it provides a plenty of opportunities for educators etc. In addition, it is convenient for running online meetings, writing private messages.

The research of E. Heidari et al. (2021) is noteworthy. He highlights that watching students in studying, their behaviour, attitude to lecturers and teachers during the online study had a positive impact on the academic activity of students. We can assert that information and communications technology supports the motivation in the education, involves students in constructive actions and assists them in obtaining the education. Furthermore, an informal educational space gives an opportunity for students to elaborate their personal studying strategies, to control their studying progress and to enlarge studying opportunities. Thus, we can state that both the formal and informal education can increase the academic interest of students. It is also worth noting that the level of students` achievements was related to how efficiently they could use digital technology. By developing their digital competences, students can upgrade their digital literacy and critical thinking in working with the digital world. Students with a high level of digital competence can easily find modern digital tools and use them in the educational process.

The article of G. Hamraeva (2021) should be mentioned. The author highlights that the contemporary system of higher education should constantly update and upgrade through scientific knowledge, as the future of our country depends on skilful and competent specialists. The sociologists indicate that the modern society is an informational age. The young generation is greatly different from the previous, communicates by mobile phones and computers, prefers the virtual communication over the personal, uses the visual language in the virtual communication, quickly acquires information having difficulties with focusing on one object though, a distracted way of thinking and shallow judgements.

Hence, one of the main requirements to the system of higher education is the constant updating of professional knowledge of lecturers and teachers and formation of digital capabilities and skills of students.

## Ways of formation of digital competence of students at educational institutions

The problem of schooling and teaching of children at elementary school by means of information and communications technology (ICT) was studied by the creative group of scholars headed by David Morris (2015). The periodicals show different ways how higher school lecturers and teachers use ICT for students. The authors offer a set of tools that can assist in teaching subjects creatively, engrossingly and successfully and educating children. The researchers advise how to use ICT for improving the reading and writing, mathematics, a foreign language. They present some efficient technologies for teaching environmental studies, demonstrate the study of computer programming and understanding of visuacy, raising of musicians, pay attention to the development of children with special needs, use of mobile technology for the authentic education, and do not avoid digital games and virtual space in the Internet.

The particular aspects of teaching by means of information and communications technology were clarified by S. Ghavifekr & W. A. W. Rosdy (2015), who vindicated that educators should change the tradition teaching methods to technological teaching means. Information and communications technology is one of the main elements of transformation to the future progress of nations. The authors held a poll with educators in order to learn about the educators` perception of the ICT potency for teaching of subjects. The results showed that a high level of formedness of digital competence of an educator and ICT means are one of the main

factors of success in studying. It was found that the professional development programmes for pedagogical personnel played a crucial role in improving the quality of the arranged educational process. As stated by the authors, information technology has completely changed our society: lifestyle, thoughts, activities. Applying ICT means its everyday use in the educational process, as electronic resources help to arrange a dynamic and active education of children, to upgrade the education quality, to give instructions to children in an apprehensible and efficient manner. The relevance of ICT integration into the education is highly important, as it assists in arranging the studying process for an educator and a student not only in the educational environment, but remotely too. Certainly, information and communications technology is not a single-stage process of education. It is a systematic process arranging the proactive teaching. It is a common fact that ICT can be used in various manners: to demonstrate instructional videos, to store data, to incite to the individual handling of information, to brainstorm etc. Hereby, it assists an educator in applying an efficient, interesting, creative approach to lessons giving a spur to children to study. No consumptions, the factor of a successful use of electronic sources is a sufficient number of computer laboratories and appliances, a fast Internet access.

Furthermore, the virus COVID-19 had a spread in spring 2020 in Ukraine, and the quarantine restrictions thereafter intensified challenges for educators, elementary school teachers in particular regarding the arrangement of a remote and mixed study, which is impossible to imagine without applying information and communications technology.

There are many training programs for the interactive content of lessons nowadays. An interesting solution is the offers of Edpro Company that creates new technology and world-class software for school teachers and teachers and lecturers of higher educational institutions. The LearningApps,org service with studying interactive modules gives an opportunity to use learning materials, to create individual tasks and send them to children, then to receive a feedback. Quizlet is a useful resource for learning foreign languages and a platform for searching for made-up tasks: various games for learning words, matching names with pictures or definitions, training the spelling and pronunciation of words, passing a test for the self-control. In addition, it is possible to add audios, images to tasks. Tasks can be printed on separate papers and handed out to children or sent via the e-resource. Mozabook is universal for creating presentations, a

notebook with videos and audios. With the help of this resource, an educator can create a virtual classroom, to join students in, to run online meetings and to demonstrate illustrations, textbook pages, to write on the board, to download a video or presentation, to offer interactive tasks, to give home tasks and to supervise the completion of works, to check and to evaluate them concurrently. The Kahoot! platform is interesting for children, as it contains readymade tasks – games that assist a teacher in running real-time competitions for children. The online constructor of questionnaires and tests is useful for interactive lessons of Ukrainian and others. The Master Class service comes to assistance for preparing termless tasks or individual tests. One can use the Triventy platform respectively for running a studying-playing quiz. For organising the solitary work for groups of children, it is appropriate to use the Ukrainian spelling exerciser that has tasks and key answers for different topics. The information is well-structured and constantly updated.

Regarding the necessity to use ICT, the creative group headed by Pedro Hepp (2015) rightfully mentioned that digital technology is a priority in the education progress. In particular, the authors set 3 criteria one should work on. First, elementary school teachers should develop competences; especially build up the informational-communicational one. Second, educators should be ready to new professional standards that centre on digital technology and add, in its turn, new ways of thinking, activities, access to knowledge. Third, teachers should use digital technology for sharing pedagogical innovations with colleagues, inciting children to creativity.

Hence, as stated by N. Olefirenko (2015), an elementary school teacher lays the groundwork for a future graduate`s knowledge. An educator is therefore a key figure in an educational institution, as a child`s achievements depend on the professional competence of an elementary school teacher, his or her skills to use educational systems, to use information technology. These vectors incite to the search of updating of the content of higher school education and professional training of elementary school teachers.

**Conclusion**

Thus, the rapid advances in the public sphere incline towards the rapid development of information technology. The literature review affords a ground to assert that many foreign and homeland scholars studied the

problem of the professional training of elementary school teachers in the age of the society informatisation.

Certainly, the educational reform initiated in 2017 is significant for the proper training of future teachers, which sees a motivated teacher who will work with present-day children and apply new approaches to teaching subjects by means of information and communications technology. Applying ICT means an everyday use in the educational process, as e-resources help to arrange a dynamic and active study of children, to upgrade the education, to easily and efficiently give instructions to students.

It has been studied that the use of e-resources has an influence not only on higher school teachers and lecturers, but students too, as it incites to interact in different environments, to share knowledge, to build a new communication, to correct information by updating it into a modern form.

It has been found that students with a high level of digital competence can easily find modern digital tools and use them in the educational process.

Definitely, the degree of education of students greatly depends on digital educational spaces as well as competences of students themselves in using these spaces.

Thus, one of the main requirements to the higher education system is a constant updating of professional knowledge of teachers and formation of digital skills and capabilities of students.

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