

World Experience in the Use of Multimedia Technologies and the Formation of Information Culture of the Future Primary School Teacher

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Summary

The article considers the world experience in the use of multimedia technologies and the formation of information culture of the future primary school teacher. In recent years, there has been a noticeable trend in the use of computers in education, of particular interest is the pedagogical field. Noteworthy, in particular, the world experience of using multimedia technologies, which shows that the information space is constantly changing. Multimedia technologies depend on the development of information and communication technologies in any open democratic society. Research of forms and methods of introduction of multimedia technologies in the educational process of secondary schools is based on the objective laws of development and reform of educational systems and their industries, including information and communication technologies, forms of introducing educational content due to national, economic and social characteristics of different countries. On the other hand, the rapid development of technology has intensified the implementation of innovations in the educational process, especially in various forms of information support of the educational process, which include distance learning, multimedia technologies, educational project activities, other forms that require detailed research, generalization experience and outlining trends in education at the present stage. The formation of information culture of the teacher is based on information education, designed to prepare teachers for life and work in modern information conditions, to teach younger students to perceive, understand a variety of information, to understand the peculiarities of its impact on the psyche. The information culture of primary school teachers is a certain level of information competence of the specialist, allows him to self-realize in the process of creative information activities through the use of information technology, prepares for independent education.

Keywords:

multimedia technologies, primary school teacher, development of information and communication technologies, democratic society.

1. Introduction

Informatization of education is one of the key factors influencing the further successful development of the economy, science and culture in the process of implementing computer technology. Today, during the pandemic, there is a need to understand its place and role in social transformations. In addition, the goals and results of progress depend on the position of the individual. For example, in the scientific sphere the interests of the scientist are of priority importance, the need to create appropriate conditions for the organization of research taking into account human characteristics is intensified, the problem of humanitarian regulation of science and its management is intensified. Due to the increased use of computer technology, there is a growing trend in the need for people to increase their sense of self-importance. Therefore, on the one hand, such knowledge and skills are needed that can be used vigorously and effectively for further development of science, technology, culture, to identify the powerful potential of computer technology, and on the other, this knowledge and skills should guarantee the sovereignty of the individual realization of creative human resources [7].

Information culture has become a culture of life in the information society. It is a question of creation of optimum model of development of scientific and educational activity. The student's information culture consists of the ability not only to obtain a variety of information, but also to comprehend it and use it for self-development, self-education and creative tasks.

The formation of information culture is influenced by a number of factors, including the family, the media, educational institutions (schools, institutions of higher

education). The process of raising the level of information culture, its improvement continues throughout the active life of man. It is important to know the rules of access to information, to have a culture of searching and selecting the necessary sources, to be able to use them, to create qualitatively new information. In today's world, it is culture that has the most important influence on the formation of personality. Currently, a special information culture of society is being formed, aimed at mass involvement in the most modern media, new information and communication technologies. This process begins in childhood and is implemented through electronic (computer) games, personal computers, school education.

The basis of information culture of the individual is knowledge of the information environment, the laws of its functioning and development, and most importantly – the perfect ability to navigate in the boundless modern world of information. The information culture of the individual is organically connected with the peculiarities of intellectual development. The richer the inner world of man, the more opportunities for the formation of his high information culture. That is why in many economically developed countries the focus is on raising the educational and intellectual level of the population.

Information culture is a means of social protection of the individual, able to independently accumulate knowledge, change areas of activity, regulate their own behavior on the basis of a comprehensive analysis of the situation. Information culture is a means of protecting society from ill-considered human actions, a guarantee that fundamental decisions in any field (social, economic, technological) are made only after an in-depth analysis of available information [8].

2. Analysis of recent research and publications

The general purpose of continuous training is to train a practitioner for professional activities in the context of informatization of society and mass global communication, able to use the full arsenal of ICT tools to implement the main directions of informatization of education [12].

M. Zhabolenko, N. Zhdanova note that currently the computerization of the educational process in higher education institutions of Ukraine is considered as one of the first and most promising areas for improving the quality of education in higher education institutions. Much attention is paid to this problem, both at the level of ministries and at the level of higher education institutions themselves. However, full-scale computerization of the educational process in higher education institutions is a complex problem that requires long-term focused work and constant attention [28].

Informatization and powerful technical equipment of the educational system significantly contribute to the humanization of education and the humanization of the educational process. Telecommunication, information service, reference and information systems, automated decision-making, modeling, simulation and training systems, etc. play an extremely important role [29].

The article by Kuzminskyi, A. I., Bida, O. A., Kuchai, O. V., Yezhova, O. V., & Kuchai, T. P. Based on the theoretical analysis of information access in the system of postgraduate pedagogical education (PPE), and programs of information and library service of teaching staff, it has been rationalized that there is a great necessity for establishing centers of scientific and information support aiming at improving the qualification of teaching staff [14].

Chagovets, A., Chychuk, A., Bida, O., Kuchai, O., Salnyk, I., & Poliakova, I describe in details the experimental work, which is based on priority principles of targeting performance and voluntariness. The essence of the components in the formation of creative activity of future pedagogues has been revealed. It has been concluded that the developed model of motivation of future pedagogues contributes to the increase of the level of formation of readiness to professional communication [3].

Kuchai O., Yakovenko S., Zorochkina T., Okolnycha T., Demchenko I., & Kuchai T. considers the training of specialists in education in the conditions of distance learning. It is lights up the advantages of distance learning and determined the characteristic features of distance learning of students training in the implementation of these technologies in the educational process [10].

Bida, O, Prokhorchuk, O, Radul, O , Yakimenko, P, & Sheychenko, O. presents an analysis of distance education in the world during a pandemic, analyzes significant changes, and implements measures in the field of education in Ukraine and around the world. The role of public and international organizations in the implementation of quarantine in the conditions of COVID-19, which partially took over the functions of state and local authorities, is emphasized. The closure of schools under COVID-19 has led to a de facto deterioration in learning outcomes, so we have analyzed the effects of distance learning and digital inequality in the world. It is shown how the COVID-19 pandemic affected access to public services in Ukraine [2].

Intensive use of information and communication technologies in modern society has led to a rethinking of the content of education and training of future foreign language specialists: the main role is played not so much by information itself as the ability to work with it, critically comprehend and produce new knowledge; the main thing is not the amount of information, but its quality; information is needed for further practical application and

transformation into knowledge, and the ability to work with information becomes one of the important competencies of the modern specialist in the new transformation of society: from information to the knowledge society. In this context, one of the main forms of training is distance learning, which is able to respond to the challenges of society [18].

3. Research methods

Distance learning is recognized as one of the priority areas of the program of modernization of secondary and higher education. In modern conditions, there is a need for higher education at a distance, due to the need to study full-time, to educate people with disabilities and those who are abroad or in prison. This opportunity is provided by distance learning, which is carried out through information and educational technologies and communication systems, especially for effective foreign language education.

Distance learning in world practice is one of the established forms of learning. The pandemic has led to significant changes in the field of education around the world, it has caused educational problems in Ukraine. At the beginning of the quarantine in the spring of 2020, all educational institutions in the emergency mode switched to distance learning. It is in demand by society, it is popular. Distance learning is the most democratic form of education that allows education to the general public. Distance learning methods are used in higher education institutions, in school education, in the system of teacher training, in the system of managerial training.

The introduction and improvement of the distance learning system in Ukraine is the introduction of computer and audio-visual equipment in the educational process. Currently, the problem of distance education is being developed by all higher education institutions in Ukraine.

The effectiveness of pedagogical support in the process of distance learning is achieved by the following conditions: the presence of students' computer literacy, accounting for psychological patterns of perception, memory, attention and age of students, their individual and personal characteristics, creating psychological comfort, including teacher ability to dialogue by means of information technologies, to find individual approach to students, implementation of specially organized self-control of students and systematic control of the teacher on generalization of knowledge provided at development of the corresponding curricula on foreign language teaching, possession of skills of independent work teaching.

Each country needs to build its capacity to provide blended learning models. All educational institutions should be better prepared (if necessary) for the transition: from full-time to distance learning. This will protect

education and create opportunities for more individualized approaches to teaching and learning not only during future pandemics, but also during other shocks, such as natural disasters, which is possible by developing flexible curricula that can be taught in person or online. In addition, all educators, including foreign language teachers, must be well prepared to manage a wide range of IT devices and guide the reform of the education sector in line with the standards of the European Education Area. This is a long-term process and Ukraine is working in this direction. Authorities are developing distance education rules, making greater use of blended learning approaches, and working to increase the number of educational institutions with Internet connections and access to digital devices and equipment. Such focused work will help educational institutions not only to overcome the consequences of COVID-19, but also to introduce more sustainable and flexible approaches in future educational activities aimed at maintaining continuity of learning and operational sustainability in higher education, thanks to measures to expand digitalization of the distance [11; 13].

The role of the teacher in this educational process also changes significantly. He is entrusted with such functions as coordinating the cognitive process, adjusting the course being studied, advising students when organizing an individual curriculum, managing their educational projects and more. It helps students in their professional self-determination. If we consider the features of distance education in terms of communication between foreign language teacher and student, we can identify the following features: self-education as a basis for distance learning, which involves the student's motivation for their own learning, and a certain level of self-organization; communication between teacher and student on the principle of "one to one", which corresponds to the form and content of individual counseling; communication and interaction "to each other" does not preclude the interaction of "one to many", because the teacher, according to a pre-arranged schedule, works with many students. This form of interaction is reminiscent of traditional learning in classrooms; "many to many" interaction means that it is possible for many students to communicate simultaneously and share experiences and impressions. Based on this, distance learning has a number of advantages over traditional learning: advanced educational technologies, availability of information sources, individualization of learning, convenient counseling system, democratic relations between student and teacher, convenient schedule and place of work.

The following measures have been implemented in Ukraine to support distance learning and learning. Support for distance learning and learning began with the broadcast of video lessons on television and the use of online distance learning platforms [13].

The quantitative analysis confirms the popularity of open education: there are currently a large number of platforms that provide access to open educational resources from various fields of knowledge. Where the teacher, in particular, in a foreign language will be able to use new technologies in education.

The mass share of IT courses in open educational resources in relation to all offered is quite large: on the resource Intuit computer science courses occupy 70% of all courses, on Udemy - 43%, UoPeople - 28%, Edx - 24%.

Most of the courses are offered not only in programming and software development, although the relative weight of these courses is the largest (38.6% of courses considered), but also in areas related to the study of specialized software in a particular field of science (philology, mathematics, physics, biology, finance, etc.), with methods of processing various information content, with cloud computing, etc. This suggests that today's youth have a variety of requests that are met by author courses from the world's leading teachers.

The development and promotion of open educational resources in Ukraine has begun, but we can't talk about the development of this movement. Proof of this are the Ukrainian platforms Prometheus and VUM, which offer a small number of courses, and not only in the IT industry. In form they are similar to foreign educational resources. At the same time, we note that this content offers traditional video lectures with the usual methodological approaches to learning – this distinguishes Ukrainian educational resources from others [21].

Society is living in a new information age, more and more people feel the need to process the growing amount of information. Computer and communication technologies are a manifestation of the information revolution. In this context, the interest of teachers who explore new opportunities for creative development of students through new information and communication technologies [15].

The revolutionary impact of information and communication technologies concerns people's way of life, their education and work, and the interaction between government and civil society. Multimedia technology is fast becoming a vital driver for the global economy, enabling many enterprising individuals, firms and communities across the globe to solve economic and social problems more effectively and creatively.

In the interpretation of a new type of society as information, the idea of a new phase of historical development of economically advanced countries is laid down. This is not the emergence of a "post-industrial society", but the creation of a new social model, which is the result of the "second industrial revolution", based on the

use of microelectronic technology. The process of informatization covers all spheres of social activity: from everyday life to international relations, from leisure to industrial relations.

The world's leading nations have realized that multimedia technologies are the engine of promising structural changes that enable rapid and at the same time humanistic progress of the country, its politics and economy. As mentioned above, new multimedia technologies equip officials with resources to increase the efficiency of government agencies, improve the quality of public services, increase education and expand its accessibility, as well as achieve competitiveness in world markets [6].

In line with scientific research, it is important to analyze and summarize the educational experience of the EU and the United States. In the United Kingdom, Poland, Germany, etc., as well as in the United States, multimedia technologies have been developed and implemented at all levels of education. Educational reforms in the world are closely linked to the introduction of multimedia technologies in the learning process of the younger generation. Most countries around the world consider it strategic to provide computerized workplaces for students, equip schools with the latest generation of various technological tools to modernize educational processes, and create a basis for students to acquire the necessary skills and competencies in the field of ICT. Multimedia technologies are part of the compulsory general curriculum of most European countries. Among the most important characteristics of the modern world is, as we know, the rapid development of information technology. Thus, in Greece, information and communication technologies are compulsory subjects in primary school [5].

In France, the state program "Preparation for France's entry into the information society" has been proclaimed since 1998 ("Préparer l'entrée de la France dans la société de l'information"). As a result, more and more scientists, members of the General Commission on Terminology ("Commission générale de terminologie"), as well as the Specialized Commission on Terminology and Neology in Informatics and Electronic Equipment (CSTIC - Commission spécialisée de Terminologie et Néologie de l'Informatique et Composants Electroniques»), pay attention to the vocabulary of the information industry and sources of its replenishment [22].

The country has passed a law in №142501 since 2002, where the Internet and ICT are identified as the first necessities of life and the main means of building the future of the nation. Accordingly, 99% of France now has high-speed Internet access. In addition, France has passed a law on the main task of the national education system – the introduction of ICT in all areas of the educational process,

from kindergarten to adult learning. Implemented national projects: "Laptop for every student", "Creating electronic content", etc. In 2008, the French government approved a government-funded e-learning program called "100% Digital Courses for 100% of Students". At the same time, the state guarantees access to these resources to the entire population of the country. In general, in France, educators and teachers teach a child to use information technology skillfully from preschool age.

Of research interest is the experience of using multimedia technologies in the UK, which ranks first in Europe in providing teachers with access to information and communication technologies, motivating them to use ICT in the educational process, the development of appropriate competencies. The share of such teachers is 60,2%. There is a deep mastery of the new "electronic" pedagogy, provided by the government's strategy for educational development for 2008-2014. Emphasis is placed on the dissemination of best pedagogical practices, developed a system "5E" - (English: Engage, Explore, Explain, Elaborate, Evaluate), which represents examples of best pedagogical experience and a description of the criteria for determining the quality of education. There is a system of publicly available, publicly funded and corporate electronic learning tools (EEPs).

The requirements of the Education Standards (GCSE) in the field of IT are quite high. The use of ICT for learning begins in primary school. Systematic mastering of subjects similar to computer science in different educational institutions starts from the second to the seventh grade [16].

The United Kingdom has developed a national strategy for information and communication technologies, which regulates the development of the ability to use them skillfully and flexibly, as well as the formation of knowledge and skills in the educational process. This way of building the educational process requires students to master a set of unique skills, among which the most important are: the use of information sources; analysis and interpretation of the received information; figurative and flexible application of technologies; reasoned processing of information; critical judgment; creative thinking; ability to make decisions, prepare a review, modify and evaluate work.

An important place in the system of multimedia learning is occupied by technological means that serve as the basis of information technology. These include electronic publications and manuals; computer training systems; multimedia complexes; educational audio and video materials; testing system; network Web-version of the course [24].

The Internet or interactive whiteboards are often used in primary schools in the UK. In primary education, an

interesting way to study the material is to use multimedia technologies (showing children fairy tales, sounding poems, counters or English songs, etc.) [20]. A relatively easy and exciting way to introduce children to the culture of different countries is to show films. This approach helps children to learn language and culture at the same time, to make imaginary journeys to places they may never visit. British researchers note that the introduction of multimedia technologies in children's education should begin at an early age, as it contributes to the rapid development of the child [26].

In Germany, the field of information technology (IT) is experiencing a real boom. According to the Federal Union of Information Economy, Telecommunications and New Media (BITKOM), its total turnover in 2012 increased by 2,8% and reached 152 billion euros. There are now more than 80,000 companies in the German IT sector, employing almost 900,000 people. The need for specialists is constantly growing, now there are more than 40 thousand vacancies [17]. With this in mind, attention is focused on training professionals, including teachers, for the introduction of multimedia technologies in children's education.

It is worth noting that over the past half century, US education has rapidly developed mass media learning technologies, which was accompanied by the intensification of research to create a theoretical and methodological basis for this area of pedagogical activity. In US universities, there is a tendency to use innovative technologies depending on the needs dictated by the level of industrial, economic and social development of society. According to the US National Center for Education Statistics, more than 70% of American universities use distance learning information and communication technologies [23].

The Scandinavian countries have noteworthy experience in the use of multimedia technologies. Given that they do not belong to the economically highly developed large states, they were able to significantly strengthen their position in the world economy through the use of ICT. Today, Finland, Sweden, Norway and Denmark are world leaders in building the information society. According to the index of K-society (knowledge-based society), as well as intellectual assets, these countries are confidently among the top five world leaders.

Sweden is a leader in information technology. This is evidenced by the largest number of telephone lines, computers and network users in the country. In addition, Sweden is one of the world's leading publishers.

Similar indicators are demonstrated by Norway, which is aware of the irreversibility of the information society, which is enshrined in the state doctrine "Information technology will increasingly affect all sectors of society."

In Norway, the idea of creating a comprehensive action plan in the field of information and communication technologies arose in response to an initiative by the EU, which in late June 2000 adopted an action plan "Electronic Europe". The eNorge program (e-Norway) was created within e-Europe but adapted to norwegian conditions. The program provides for adaptation to the conditions of the country's development. The Norwegian government has stated that it intends to achieve the goals of the information and knowledge society on all three key requirements that must be guaranteed: access – competence – confidence [1].

The Norwegian program for the formation and transition to the information society "The best use of information technology in Norway" is close in ideological content to the Finnish. The Norwegian program emphasizes that "access to international networks should be provided to all universities and other educational institutions". In addition, it is stated: "Distance education should be adapted to the need of individuals to acquire knowledge and skills in the use of information technology".

Currently, the whole society is being informatized. The Internet and local connections are just the beginning, and more and more people are communicating with each other using ICT, and they are able to not only hear but also observe their actions in real time. The public sector is no exception, as evidenced by the statistics of the eNorge action program: in the public sector, most organizations and institutions have created their own pages: 87% - government agencies; among municipalities and districts - 59%. The key task is to develop what we call interactive and operating systems that allow public relations to be developed entirely in electronic form [4].

Thus information and communication technologies are an important social resource for the country's development. Norway's share of the economy is related to the production of knowledge, the creation and implementation of knowledge-intensive, including information technology. Science plays an important role in shaping the new information society, and information and communication technologies are a factor in improving the quality of life.

Despite the fact that in Finland the ICT education system is almost 100%, only 30% of Finnish teachers use digital communication tools in lessons (according to a report by the Organization for Economic Co-operation and Development (OECD)). Many of them simply do not understand how technological innovations can change the school, because in Finland one of the best education systems [16]. Currently, the country has completed the first two programs, among the main achievements – the introduction of information management models in public administration, informatization of the health care system,

coordination of efforts to implement the information society between central government and local government. The task of the "Information Society Development Strategy until 2015" is to develop the so-called phenomenon of Finland. The strategy emphasizes the role of technology to improve the quality of life in the country, plans to reform public administration; introduction of high-speed information transmission networks; constant stimulation of education; modernization of labor legislation; updating the innovation system; dissemination of the latest technologies among small and medium-sized businesses; participation in international programs.

Thus, Finland is persistently and consistently moving in the outlined direction, the correctness of the chosen course is confirmed by the growing share of information technology, which is now about 45%.

The approach to the problem in Denmark is productive, where effective commercial management of telecommunications is successfully combined with maintaining state control over property and information flows. In 1993, a separate Ministry of Research and Computer Science was set up in the country to develop the conceptual framework and strategy for the country's transition to the information society.

In recent decades, all developed countries have adopted concepts and regulations, formulated strategies and tactics for information development. Such programs have already been developed, in particular, in the United States (US National Information Infrastructure Action Plan); European Union ("European path to the information society"); Germany ("Germany's path to the information society"); Denmark ("State Program for the Transition to the Information Society"); Norway (the eNorge program and the program for the formation and transition to the information society "The best use of information technology in Norway"); Sweden (Swedish Information Society, Swedish National Information Society Strategy); Finland (the first program "Finnish path to the information society", the second program of information society development "Strategy for the development of the information society until 2015").

In Sweden, according to the national strategy, information technology should promote employment, regional development, justice and democracy, quality of life, gender equality, better governance, sustainable development, better learning and the use of globalization. The Swedish National Information Society Program "Swedish Information Society" deserves attention, the main aspects of which include: the constructive impact of information and communication technologies on society; productive use of information and communication technologies in everyday life; dissemination of information

about the latest information and communication technologies to inform the population. The main slogan of the program is formulated: "Information society for all". The government is tasked with bringing the country to the leading position in the world in terms of development and development of the information society for all segments of the population [16].

4. Results

In the proposed context, it is logical to find out the role of the latest technologies in the educational process, which affects student performance. Scientists around the world are actively exploring how multimedia technologies affect the learning process, methods and technologies, as well as the effectiveness of their application. It should be noted that television, radio, computer network are effective tools for learning. The use of multimedia technologies stimulates students' interest in learning.

Teacher training is an important component of the introduction of multimedia technologies in the context of the development of open education in developed countries in Europe and the world. For example, in countries where ICT is taught as a separate subject or as a means of teaching other subjects, teachers are often assisted by special assistants who accompany the computer support of the educational process. This is a common practice in the education system of many countries [27].

It is known that the teacher plays a unique and unique role in the life of the student as the highest authority and role model. The teacher's attitude to the school as an educational institution, to the teacher and school responsibilities depends on the teacher [20]. The personal traits of the teacher, as well as his pedagogical competencies are extremely important because they affect the development of the child in all areas of individuality, ie not only in the field of intellectual "orders", but also social foundations, learned moral values, culture, health and physical development [19].

Recognizing the expediency of starting multimedia education at an early school age, it should be noted that the modern primary school teacher interprets education as a research process in which the student independently looks for options to solve problems. Such a student can be prepared only by a creative teacher who promotes the generation of innovative ideas, is open to the initiative of the environment, constantly enriches his knowledge, improves professional competencies. The work of a creative teacher is characterized by continuous search, research, experimentation, engagement in the implementation of the goals of the educational process.

In the development of the information society, the processes of globalization of economy and culture, education reform, and the nature of the teaching profession, where knowledge and skills acquired during teacher training quickly become insufficient, self-improvement, self-learning, formation of pedagogical competences [25].

Conclusions

The main task of the teacher is to prepare the new generation for life in modern information conditions, to perceive and understand various information, awareness of its effects on the psyche, mastering communication methods based on nonverbal forms of communication, using technical means and modern information technology.

The use of computers in educational activities helps to rethink traditional approaches to the study of many issues of disciplines, to fill the process with new methods, approaches to the analysis and modeling of learning systems. This format of information training of students contributes to the systematic development of knowledge and skills of professional work, improves the quality of training.

Multimedia technologies in an educational institution should become a way to optimize the educational process, an object to be studied so that the future specialist can make optimal use of them. Achieving the required level of information culture of a specialist can't be the goal of only one discipline, the introduction of modern information technology in all courses, which requires a certain level of professional training of teachers, acquaintance with the resource potential of these technologies, ability to realize opportunities in practice and science. This is a relevant and pedagogically important point, because students must try the benefits of modern information technology in the process of training sessions, research, etc. [9].

Summing up, we note that in the educational field of many European countries and countries around the world use multimedia technologies to improve and develop the process of education and training. In today's information society, it is necessary to train a large number of teachers capable of operating multimedia technologies. Today, multimedia technologies are one of the promising areas of informatization of the educational process. The prospect of successful application of modern information technologies in education is seen in the improvement of software and methodological support, material base, as well as in the obligatory professional development of the teaching staff. The teacher who uses the computer fills the educational process with fundamentally new cognitive tools that serve as a tool of cognition. Widespread use of modern multimedia technologies significantly increases the

efficiency of the educational process. The experience of informatization of education systems of other countries shows that one of the conditions for the success of the country is the formation of teachers as a professional information culture and general information culture, understanding it and using it for self-development, self-education.

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