

# Informatisation of School Education in Ukraine under Globalization and Europeanization

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**Abstract.** The article describes the tendency of informatisation of school education in Ukraine during the time of independence. Based on the analysis of legislative and strategic documents defining the development of Ukrainian education, the movement is open starting from the idea of introducing information resources into education in the early 90's of the 20-th century to complex informatisation with the purpose of formation of information space, ICT-competent young generation at the present. Under conditions of the European choice of Ukraine and the Europeanization of Ukrainian education, the importance of the study of the experience of the European countries and the EU on the development of ICT-oriented education have been proved. The strategic documents of the EU in the field of education that emphasize the importance of digital education in the information society are analyzed, and its priority in educational strategies has been proved. The conclusion is made about the prospects of European experience for Ukraine and, at the same time, attention is drawn to the aspects that require further development at the strategic level.

**Keywords:** Informatisation, School education, Ukraine.

## 1 Introduction

After proclamation of Ukraine's independence in 1991 its further development as a state foresaw the reform of education aimed at creating a system to respond new democratic realities. The first educational legislative document – the Law of Ukraine “On Education” (1991) – was aimed at the decomunization of education, upbringing of the younger generation in the spirit of national and universal values, giving priority to the Ukrainian language [25]. At the same time, the wave of the information revolution at the end of the 20-th century activated new challenges at the global level, which caused the need to respond by the Ukrainian education by introducing appropriate changes primarily to the legislative and regulatory base by synchronizing with the educational strategies of the countries of the world. The strategic documents in the area of education in Ukraine – the State National Program “Education” (Ukraine 21-st Century) (1993) [28], National Doctrine of Education Development (2002) [14], National Strategy for the Development of Education in Ukraine until 2021 (2013) [16],

Concept “New Ukrainian School” (2016) [23] – adopted during the twenty five years of independence of Ukraine, reflect the gradual movement of the Ukrainian school education in the direction of informatisation. The new Law of Ukraine “On Education” (2017) [26] positions the national education as information-based one, harmonizes its development with the development of EU countries that consider informatisation of education as one of the priorities in the strategic documents. These are strategic education program “Education and Training 2020” (2009), the European Commission’s “Rethinking Education: Investing in skills for better socio-economic outcomes” (2012) program and others.

The research results outlined in this article are obtained in the framework of the research work of the Department of Comparative Education of the Institute of Pedagogy of the National Academy of Educational Sciences of Ukraine on the problem of educational transformations in the EU countries and the USA.

The purpose of this article is to analyze the dynamics of informatisation of school education in Ukraine under globalization and Europeanization at the level of legislative and strategic documents. In this article we understand the informatisation as a process of transforming national school education in a broad sense into the information paradigm.

## 2 Literature Review

The problem of informatisation of education, application of information and communication technologies (ICT) in the educational process is the subject of research of many Ukrainian scholars. For instance, V. Bykov, R. Gurevich, M. Kademii, L. Nakonechna, L. Petrova, S. Sysoeva study the development of the conceptual apparatus on informatisation of education; V. Bepalko, L. Belousova, V. Zabolotnyi, T. Nosenko – didactic and methodical aspects of the application of ICT in the e-learning process; V. Andrushchenko, A. Kudina – formation of modern information and educational environment based on introduction of innovative technologies for teaching; S. Rakova, Y. Ramsky, A. Yurchenko – competence approach and ICT; Dzyuba, M. Zhaldak, S. Kizim, S. Loboda; I. Vorotnikov, A. Kocharyan, N. Morse, S. Petrenko – peculiarities of formation of information competence of future teachers by means of ICT; T. Tarnavska, O. Torubara, V. Umanets – application of ICT in the educational process of higher educational institutions [2].

The works of the Ukrainian scholars working in the area of comparative education with attention to the ICT aspects in education are of special interest for this research. In particular, A. Gurzhiy and O. Ovcharuk in the paper “Discussion aspects of information and communication competence: international approaches and Ukrainian perspectives” (2013) raise an issue of understanding the informational-communication competence in international and national educational dimensions. O. Bilous, O. Grytsenchuk, I. Ivanyuk, O. Kravchyna, M. Leschenko, I. Malitska, N. Morse, O. Ovcharuk, D. Rozhdestvenskaa, N. Soroko, L. Tymchuk, V. Tkachenko, M. Shinenko, A. Yatsyshyn in the guidebook “Formation of Informational-Communication Competences in the Context of European Integration Processes of

Creation of Information Educational Space” (2014) reveal general approaches to the formation of informational-communication competence of pupils in the European countries under the conditions of informational educational environment. The guide-book “Assessment of informational-communication competence of pupils and teachers under European integration processes in education” (O. Ovcharuk, O. Hrytsenchuk, I. Ivanyuk, O. Kravchyna, M. Leshchenko, I. Malytzkaya, N. Soroko, L Tymchuk, 2017) offers an overview of the practice of assessing the informational-communication competence of pupils, teachers and managers of general education institutions in the European countries [9; 1].

### **3 Results of the Research**

In the Encyclopedia of Education (2008) informatisation of education is understood as an set of interrelated organizational, legal, socio-economic, educational, methodological, scientific and technical, production and management processes aimed at satisfying the information, computing and telecommunication needs associated with the possibilities of methods and means of ICT of the participants of educational process, as well as those who manage and provide this process [8]. V. Bykov, the author of the article on the informatisation of education in the Encyclopedia states that the informatisation of education involves wide and effective implementation and use of ICT in the implementation of educational, scientific and management functions inherent to the educational field, as well as informatisation of education that significantly affects the content, organizational forms and teaching methods [8].

The conducted analysis of the documents showed that the issue of informatisation of education and the introduction of information technologies were already raised in the first strategy of national education development – the State National Program “Education” (“Ukraine XXI Century”) (1993). Informatisation of secondary, vocational and higher education is considered as a prerequisite for its reformation [28].

The Concept of the National Program of Informatisation (1998) became an important reference point for informatisation of the education of Ukraine. Here the informatisation is positioned as a set of interrelated organizational, legal, political, socio-economic, scientific and technical, productive processes aimed at creating conditions to satisfy the information needs, realizing the rights of citizens and society on the basis of creation, development and use of information systems, networks, resources and information technologies created on the basis of application of modern computing and communication equipment. Informatisation of education is considered here as an instrument for the formation and development of the intellectual potential of the nation, the improvement of the forms and content of the educational process, the introduction of computer teaching and testing methods. The results of informatisation of education in the document are: development of information culture of a person (computer education); development of content, methods and means of learning to the level of world standards; shortening the term and improving the quality of education and training at all levels; integration of educational, research and production activities; improvement of education management; staffing of all areas of informatisation of

Ukraine through specialization and intensification of training of relevant specialists [18].

The need of informatisation of education as a complex of measures aimed at modernizing Ukrainian education, its compliance with the best European and world standards was proclaimed in the innovative at that time strategic document in education - the National Doctrine of Education Development (2002). The document responded to the challenges of globalization, transition to the information society. The introduction of information technologies has been declared as one of the priorities of the development of national education. The introduction of modern ICT is associated with further improvement of the educational process, accessibility and efficiency of education, training of the younger generation for life in the information society. This is planned to be achieved through gradual informatisation of the education system aimed at satisfying the educational information and communication needs of the participants in the educational process; the introduction of distance learning with the use of ICT in the educational process along with traditional means; the development of individual modular curricula of different levels of complexity depending on specific needs, as well as the provision of electronic textbooks; the creation of an industry of modern teaching methods that correspond to the world scientific and technical level being an important prerequisite for the implementation of effective strategies for the achievement of educational goals.

The National Doctrine of Education Development states that the state supports the process of informatisation of education, the use of ICT in the education system; promotes the provision of educational institutions with computers, modern learning tools, and the creation of global information and education networks [14].

Under conditions of the rapid dissemination of ICTs in all spheres of human life, the Ukrainian state has approved a number of important documents proclaiming the task to build an information society. Thus, the Law of Ukraine "On the Basic Principles of the Development of the Information Society in Ukraine for 2007-2015" (2007) defines the tasks, objectives and directions of the development of the information society.

In the document the main strategic goal of the development of the information society in Ukraine is the provision of computer and informational literacy of the population, first of all through the creation of a system of education oriented towards the use of the newest ICTs in the formation of an all-round personality; as well as the development of the national information infrastructure and its integration with the global infrastructure.

Information society in Ukraine is considered as one in which every person widely uses modern ICT opportunities for the creation of information and knowledge, uses and exchanges them, produces goods and provides services, fully realizing their potential, increasing the quality of their lives and contributing to the country's sustainable development based on the purposes and principles proclaimed by the UNESCO Declaration of Principles worked out at the highest level World Summits on the information society, i.e. the Geneva Declaration of Principles "Building the Information Society: A Global Task in the New Millennium" (2003) and Tunisia Program for the Information Society (2005).

Under this context it is important that in conjunction with the development of information infrastructure, the state proclaims the goal of ensuring computer and information literacy of the population, first of all through the creation of a system of education focused on the use of the newest ICTs in the formation of an all-round personality. In order to accelerate the ICT introduction into the secondary education institutions the state target program “One Hundred Percent” was launched in 2011 aimed at ICT implementation into the educational process for the period until the year 2015. The program provided the provision of comprehensive educational institutions with ICT, the creation of an open network of educational resources, updating the content, forms and methods of teaching computer science, training and improvement of teachers’ qualifications [29].

At the beginning of the 21-st century under intensification of globalization, deep and dynamic penetration of ICT into all areas of life the countries of the world intensified the transition from the economy based on a fuel and raw materials to the knowledge-based economy in order to reduce threats to national security, increase social well-being of societies, attract citizens to all the benefits of the information society.

Ukraine adopts the Strategy for the Development of the Information Society in Ukraine (2013) in order to accelerate the development of the information society. The main directions of the Strategy implementation are the following: development of such spheres of public life as information infrastructure, information security, e-economy, e-governance, e-democracy, e-culture, e-medicine, e-education. The last one is seen as a tool for learning, upbringing, training for work in the information society. Within this goal, it was planned the following:

- ensuring the gradual informatisation of the education system aimed at satisfying the educational information and communication needs of the participants of the educational process;
- formation and implementation of informational educational environment of the education system;
- development of individual modular curricula of different levels depending on concrete needs, as well as the production of electronic textbooks and encyclopedias;
- creation of information system supporting the educational process, information and analytical support
- system in the field of management of educational institutions, information and technological support of education monitoring;
- provision of full-scale educational institutions with computer complexes and multimedia equipment;
- development of a network of electronic libraries at all educational levels;
- creation of a system of distance learning, including people with disabilities and children in long-term treatment, and ensuring the effective implementation and use of ICT at all educational levels of all forms of education;
- ensuring the educational process by means of ICT, as well as access of educational institutions to the world
- information resources;

- creation of an open network of educational resources;
- creation of the national scientific and educational space, which will be based on the unification of various national multi-purpose informational-communication systems;
- development of methodological support in the use of computer multimedia technologies in the process of teaching subjects and disciplines;
- improvement of a curriculum, opening of new specialties from the latest ICTs, the implementation of the principle of “life-long education”;
- providing free access to ICT and information resources, especially in rural areas and remote settlements;
- raising the level of computer literacy of the population;
- creation the conditions for mastering the computer literacy of all graduates of schools within the next five years;
- provision of all educational institutions with the broadband access to international scientific and educational networks and the Internet [16].

The National Strategy of the Development of Education in Ukraine for the period up to 2021, approved in the same 2013 year, noted the slow informatisation of the education system and the introduction of ICT into the educational process. Considering this, informatisation is proclaimed as one of the strategic directions of the state policy in the field of education. In the document, informatisation of education is positioned as implementation of modern ICTs, which provide improvement of the educational process, accessibility and efficiency of education, training the younger generation for life in the information society. The Strategy actually repeats the measures planned in the Strategy of the Information Society Development in Ukraine (2013). It is aimed at equipping educational institutions with computer technology and access to the Internet, as well as global information resources, implementing information education environment into the education system, creating an information system supporting the educational process and providing electronic textbooks [16]. Consequently, the National Strategy for the Development of Education in Ukraine for the period up to 2021 forms the system of education focused on the use of ICT at the state level.

The concept of the implementation of state policy in the area of reforming general secondary education “New Ukrainian School” for the period up to 2029 (2016) continues to consider the education system as an ICT-based one, linking the success of the reform of the Ukrainian school with the speed of ICT implementation into education. The document states that the introduction of ICT in education should be shifted from one-time projects to a system process covering all types of activities. The result should be the formation of key competencies of pupils, which means that ICT significantly expands the capabilities of a teacher, optimize management processes, thus forming important for our century technological competences of pupils, information and digital competence, which means the confident and critical use of ICTs for the creation, retrieval, processing, exchange of information at work, in the public space and in private communication; possession of information and media literacy, the basics of programming, algorithmic thinking, database skills, internet security and cyber security; understanding the ethics of working with information [23].

Information and digital competence as one of ten peoples key competencies to be formed at the end of secondary schooling is officially approved by the new Law of Ukraine “On Education” in 2017 [26].

Thus, as evidenced by the analysis of legislative and strategic documents, the national education during the years of independence has gone from introducing information resources to comprehensive informatisation aimed at forming the information society in which the population and, above all, young people have ICT competence, confidently using ICT for work and life.

As stated in the National Report on the State and Prospects of Education Development in Ukraine (2016) the main results in the area are the following:

- gradual informatisation of the education system aimed at satisfying the educational information and communication needs of the participants of the educational process;
- formation and implementation of informational educational environment of the education system;
- formation of a computer-technological platform for open education at all levels – from preschool to postgraduate and life-long education based on usage of cloud computing technologies;
- improvement of compute technical equipment of educational institutions; cabinets, laboratories, workshops, libraries;
- upgrading teaching technologies, methodical support and content of distance and e-learning on the basis of ICT;
- introduction of new forms of organization of educational process, forms and methods of teaching (e-learning, mobile learning, smart learning, STEM education, open online courses, etc.) based on cloud oriented technologies, Web 2.0 technologies, electronic social media services);
- introduction of open educational systems based on electronic scientific and educational resources, science-based open source databases, systems and electronic libraries;
- development of complex of scientific researches on informatisation of education;
- formation and development of information culture and ICT-competencies [15].

EU MASTIS project can be good example of Ukraine’s improvements on ICT in high schools, i.e. Simon Kuznets Kharkiv National University of Economics, Ukraine, National Technical University of Ukraine “KPI”, Ukraine; Lviv Polytechnic National University, Ukraine, Vinnytsia National Technical University, Ukraine, Kherson State University, Ukraine, National Technical University “Kharkiv Polytechnic Institute”, Ukraine under auspice of the Ministry of Education and Science of Ukraine [12]. The Project goals are to improve Master Program in Information Systems according to the requirements of business; to modernize the current Degree Profile and curricula in Information Systems; to develop innovative academic environment for Master program of Informational Systems as a platform for training/retraining, PhD, LLL; to modernize labs infrastructure for Information Systems.

However, according to the statistics of the Ministry of Education and Science of Ukraine and the State Statistic Service of Ukraine, in Ukraine the number of students

per school computer in 2011 was 27.0, in 2012 – 25.0, in 2013 – 21.0, in 2014 – 17.0, and in 2015 – 16.0 [13]. At the same time, according to the OECD Report “Students, Computers and Learning. Making the Connection“(2015) in 2012 in Australia the number of students per school computer was 0.9, in the UK – 1.4, in the Czech Republic – 1.6, in the USA – 1.8, in Lithuania – 1.9, in Estonia – 2.1, in France – 2.9, in Finland – 3.1, in Poland – 4.0 [17, c. 20].

Data from the International Study of Measuring the Information Society Report (2015) testify that Ukraine has been lagging behind the developed countries regarding the development of the information society, despite the existing potential and opportunities [30]. This conclusion corresponds to the findings of the Global Information Technology Report 2016 according to which Ukraine ranks 64-th among 139 countries according to the Networked Readiness Index 2016 [31]. And this is a call for action, especially within the framework of the Association Agreement between Ukraine and the EU (2014).

The Association Agreement has taken the development of the information society in Ukraine to the new level intensifying the process of its synchronization with the EU standards, integration into the European digital space. Chapter 14 “Information Society” of the Agreement foresees the strengthening cooperation between the parties on the development of the information society through the provision of universal access to ICT [24]. The cooperation aims at implementing national information society strategies, developing a comprehensive regulatory framework for electronic communications and expanding Ukraine’s participation in EU ICT research activities.

The strategic education and training program – Education and Training 2020 (2009) underlines the importance of innovations for building the most competitive and dynamic knowledge-based economy in the world [5].

The EU Strategy Paper “Rethinking Education: Investing in skills for better socio-economic outcomes” (2012) was the response of the European Community to new globalization and internal challenges within the EU’s borders in the second decade of the 21-st century. In particular it emphasizes that modern, knowledge-based economies require people with higher and more relevant skills especially under on-going digital revolution. At the same time digital revolution brings important opportunities for education, i.e. it offers unprecedented opportunities to improve quality, access and equity in education and training; it is a key lever for more effective learning and to reducing barriers to education, in particular social barriers. Individuals can learn anywhere, at any time, following flexible and individualized pathways.

At the same time, even under the most favorable conditions for acquiring digital competences within the EU borders, according to EU statistics around 40% of the EU population has an insufficient level of digital skills; 32% of the EU workforce have insufficient digital skills, with 13% assessed as having none at all; 42% of the citizens with no computer skills are inactive in the labour market in 2015. As a result, many citizens lack the ability to explore the full potential of digital technologies in their everyday lives.

The adoption of documents that transform the education system into the digital basis was the answer to the above mentioned challenges. The architecture of digital-oriented education comprises digital competence frameworks for citizens (DigComp),

educators (DigCompEdu), educational organisations (DigCompOrg) and consumers (DigCompConsumers). A framework for opening up higher education institutions (OpenEdu) was adopted in 2016, along with a competence framework for entrepreneurship (EntreComp). Some of these frameworks are accompanied by (self-) assessment instruments.

The competence strategy in education within EU in education is based on the European Reference Framework for Key Competences for Lifelong Learning, approved by the European Parliament and the European Council in 2006 [4]. The document identifies eight key competencies, including digital competence, which is defined as the one which involves the confident and critical use of Information Society Technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet.

It should be noted that the EU’s approach to the definition of competences and digital competence in particular was the basis for developing the concept of competency education in Ukraine and the interpretation of digital competence (see Table 1).

**Table 1.** Digital Competence in the European Reference Framework of Key Competences for Lifelong Learning (2006) and in the “New Ukrainian School” Concept (2016).

<b>European Reference Framework of Key Competences for Lifelong Learning (2006)</b>	<b>“New Ukrainian School” Concept (2016).</b>
Digital competence involves the confident and critical use of Information Society Technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet	Information and digital competence means the confident and critical use of ICTs for the creation, retrieval, processing, exchange of information at work, in public space and in private communication; possession the information and media literacy, the basics of programming, algorithmic thinking, database skills, Internet security and cyber security; understanding the ethics of working with information

The European Digital Competence Framework for Citizens and a related self-assessment tool in 2015 – known as DigComp – was adopted by the European Commission in 2015. DigComp is a common reference framework that sets out 21 competences, grouped in 5 key areas, to describe what it means to be a digitally competent personality:

1. Information and data literacy: to articulate information needs, to locate and retrieve digital data, information and content; to judge the relevance of the source and its content; to store, manage, and organize digital data, information and content.

2. Communication and collaboration: to interact, communicate and collaborate through digital technologies while being aware of cultural and generational diversity; to participate in society through public and private digital services and participatory citizenship; to manage one's digital identity and reputation.
3. Digital content creation: to create and edit digital content; to improve and integrate information and content into an existing body of knowledge while understanding how copyright and licenses are to be applied; to know how to give understandable instructions for a computer system.
4. Safety: to protect devices, content, personal data and privacy in digital environments; to protect physical and psychological health, and to be aware of digital technologies for social well-being and social inclusion; to be aware of the environmental impact of digital technologies and their use.
5. Problem solving: to identify needs and problems, and to resolve conceptual problems and problem situations in digital environments; to use digital tools to innovate processes and products; to keep up-to-date with the digital evolution [6].

Digital Competence of Educators (DigCompEdu) published in 2017 is no less important [7]. Six DigCompEdu areas focus on different aspects of educators' professional activities:

- Area 1: Professional Engagement Using digital technologies for communication, collaboration and professional development.
- Area 2: Digital Resources Sourcing, creating and sharing digital resources.
- Area 3: Teaching and Learning Managing and orchestrating the use of digital technologies in teaching and learning.
- Area 4: Assessment Using digital technologies and strategies to enhance assessment.
- Area 5: Empowering Learners Using digital technologies to enhance inclusion, personalization and learners' active engagement.
- Area 6: Facilitating Learners' Digital Competence Enabling learners to creatively and responsibly use digital technologies for information, communication, content creation, wellbeing and problem-solving.

A new strategic initiative aimed at further building the information society in the EU is a document adopted in January 2018 – Digital Education Action Plan. The Action plan is the new EU's response to the urgent need to boost digital skills and competences in Europe and to improve the uptake of technologies in education, because (as it is stated in the document) 37% of the EU workforce has low digital skills, or none at all; less than half of children are in schools which are highly equipped digitally; only 20-25% of them are taught by teachers who are confident using technology in the classroom; 18% of primary and secondary schools in the EU were not connected to broadband.

The Digital Education Action Plan includes 11 initiatives to support technology-use and digital competence development in education and has three priorities, setting out measures to help member states meet the challenges and opportunities of the digital age:

- Priority 1: Making better use of digital technology for teaching and learning.
- Priority 2: Developing digital competences and skills.
- Priority 3: Improving education through better data analysis and foresight [3].

Also in January 2018 the EU proposed the renewed vision of the European Reference Framework of Key Competences for Lifelong Learning (2006) in a Proposal for a Council Recommendation on Key Competences for Lifelong Learning (Brussels, 17.1.2018 SWD(2018) 14 final) [4].

The document offers an updated list of eight key competencies – Literacy competence; Languages competence; Mathematical competence and competence in science, technology and engineering and; Digital competence; Personal, social and learning competence; Civic competence; Entrepreneurship competence; Cultural awareness and expression competence.

The concept of digital competence went through serious transformations. As it is underlined in the Proposal understanding and relevance of digital competence has experienced a dramatic boost since 2006 – in the revised version the definition of the digital competence is aligned with the Digital Competence Framework and its associated tools, such as frameworks specifically developed for consumers, educators as well as in line with other existing national frameworks.

Besides, the terminology used for the digital competence definition also was updated (see table 2).

**Table 2.** Digital competence definition in European Reference Framework of Key Competences for Lifelong Learning (2006) and in Proposal for a Council Recommendation on Key Competences for Lifelong Learning (2017).

<b>European Reference Framework of Key Competences for Lifelong Learning (2006)</b>	<b>Proposal for a Council Recommendation on Key Competences for Lifelong Learning (2017)</b>
Digital competence involves the confident and critical use of Information Society Technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet	Digital competence involves the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration, digital content creation (including programming), safety (including digital well-being and competences related to cyber security), and problem solving.

Thus, under digital revolution the world and Europe make every effort to confront the existing challenges and maximize the benefits of ICT. This is evidenced by the scaled strategies for the development of societies and educational systems which actually transform societies and education on a digital basis. It is necessary to note the coher-

ent nature of EU policy in the field of education to the direction of digital transformation – this is about both infrastructure development and the development of digital competence in different groups of the population that is emphasized more and more during the last decades. Another important characteristics of the strategy is that it foresees interaction at all levels and all stakeholders vertically and horizontally: between Brussels and the Member-states, central government, regional and local educational authorities, educational institutions; the education sector and employers; educators, students, parents; formal and informal education.

## 4 Conclusion

The conducted research has shown a significant progress of Ukraine and the Ukrainian education in the direction of building an information society. Ukraine has worked its way from computerization of the teaching and learning towards informatisation of education. At the same time, the world and the European community move rapidly towards digital transformation of education and learning, making ICT an integral part of modern life, directly linking digital technologies with the knowledge economy.

European belonging of Ukraine, its geographical and mental closeness to the EU, devotion to the European values, contributes to the Europeanization of Ukraine and the Europeanization of the Ukrainian education in particular. The problem of Europeanization is analyzed in the works of many foreign and Ukrainian scholars. In particular, the Ukrainian scholars V. Bashtannik, L. Prokopenko, N. Rudik, O. Rudik, I. Shumlyayev, and others analyse it in terms of terminology, the dynamics of its development within the borders of the EU and beyond, with reference to the research of such foreign scholars as Robert Ladrech, Tanja A. Börzel and Thomas Risse, Johan P. Olsen, Christoph Knill and Dirk Lehmkuhl and others. The issue of Europeanization of education is the subject of study of such foreign scholars as Nafsika Alexiadou, Sotiria Grek and Martin Lawn, Benedicte Robert, Marco La Rosa and others [20, 21, 27].

Researchers define Europeanization as a process of formulating, disseminating and institutionalizing formal and informal rules, procedures, paradigms of politics, styles, modes of action, common beliefs and norms that were first identified and endorsed during decision-making in the EU, and subsequently incorporated into the logic of internal discourses, special features, political structures and policies of the Member States [11].

The issue of Europeanization of education is deeply studied in the works of S. Greck and M. Lown (2012). They characterize this process as a complex one with the following dimensions:

- creation of a new space of activity, thinking, politics through means of networks, associations, structures within the EU borders, strengthening the role of national actors in the design of this space through the interpenetration of political ideas, knowledge, data and practices;
- creation of a common policy or educational space as a result of general regulation by the EU through open method of coordination [10].

Scholars emphasize that Europeanization being a process of EU formation that directly or indirectly relates to this political entity. At the same time, it is a process that transcends the borders of the EU within the framework of globalization and has an impact beyond its borders.

Under the conditions of European integration of Ukraine, the mentioned concept of Europeanization serves as an imperative for the further development of the state policy in the direction of informatisation, transformation of education into a digital-based one along the EU lines. It seems necessary to accelerate the development of the comprehensive strategic framework similar to the EU ones in ICT education area. Not least important is its regular updating (example of the European Reference Framework of Key Competences for Lifelong Learning (2006) and Proposal for a Council Recommendation on Key Competences for Lifelong Learning (2017)) under conditions of rapidly changing reality.

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