It was found that the need to introduce additional pedagogical factors into the educational process of institutions of higher education is dictated by the lack of adequate tools for individualization and differentiation of learning and effective methodological practices, which make it possible to improve the quality of professional training of future teachers of natural sciences. The essence of the concept of "pedagogical conditions" is revealed; scientific views on the problem of training future teachers of natural sciences for professional activity on the basis of differentiation and individualization of education are highlighted; the pedagogical conditions for training future teachers of natural sciences for professional activity on the basis of differentiation and individualization of education are identified and theoretically substantiated (updating the differentiated and individualized context of training future teachers of natural sciences for professional activity; integration and updating the content of natural science education taking into account the principles of differentiation and individualization; implementation of the system of differentiated and individualized didactic materials in the training of future teachers of natural sciences; organization of individualized self-education activities of future teachers). It was summarized that the pedagogical conditions for training future teachers of natural sciences for professional activity on the basis of differentiation and individualization of education are such a combination of elements that ensure the achievement of the planned result – the formation of their readiness for professional activity.

Key words: pedagogical system, future natural science teachers, professional training, differentiation and individualization of education, readiness for professional activity.

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CONTINUITY OF VOCATIONAL EDUCATION AS AN INNOVATIVE CHALLENGE IN THE CONDITIONS OF EUROPEAN INTEGRATION AND DIGITALIZATION

The article is devoted to the issue of continuity of vocational education in the conditions of European integration and digitalization. The purpose of research is analysis of strategic documents and accumulated better practices of the EU countries for identifying the main directions of development of the continuous education in Ukraine in the conditions of European integration and digitalization. Based on the analysis of the strategic documents of the European Union, it has been found that high-quality educational content (in terms of content and form of execution) with the possibility of interactive participation and mentoring is in demand today. Distance education has significant advantages for the implementation of continuous education that is oriented to an unlimited number of students with the possibility of obtaining knowledge at a convenient time, the possibility of choosing a convenient (optimal) learning pace. That variant of obtaining education is available for people of different training levels, age, social position and health. It has been summed up that the distance format is largely consistent with the principles of the concept of continuous education, and meet the dynamically changing needs of a modern person in applied knowledge. The general specific of the examined formats is strengthening the components of the informal nature of education, individualization (customization) of educational practices and orientation to the subjective needs of the personality.

It has been determined that the key direction of development of the educational environment in the conditions of European integration and digitalization are distance education; gamification of education and using cloud technologies; implementation of augmented reality solutions and visualization

technologies; development of social networks in education; development of mass opened online courses. It has been generalized that the following measures will facilitate the continuity of vocational education in the conditions of European integration and digitalization: educational trips, exchange of delegations; education in the format of "summer" and "winter" schools with "deep immersion", organization and conduction of author's master classes, use of project technologies and techniques of game technology; increasing the share of distance learning to 50% of the total number of courses, using interactive forms (webinars, quizzes, virtual traineeships, etc.) with the involvement of representatives of educational organizations of the European Union.

Key words: digitalization, European integration, continuity, distance education, digital culture, vocational education.

The statement of the issue. The global spread of digital and information and communication technologies provoked the emergence of new sociocultural phenomena, in particular the phenomenon of "digital" thinking, and "digital" lifestyle [8, p. 170], as well as the transformation of old, classical systems, including the conservative education system [3]. In education, these processes were manifested in the implementation of innovative approaches, implemented in all the diversity of activities of educational institutions and determined by the specificity of their work [4, p. 30]. So, digital educational space has already been created and is functioning, innovative learning technologies have been tested and put into practice, a toolkit has been formed, methodical recommendations for teachers and students have been developed, and information security conditions for participants in the educational process in the digital environment have been ensured, etc. That is, the digital space opened new horizons in the development of education.

It turned out that these possibilities are quite large: from the use of a computer, multimedia, and interactive technologies directly during educational classroom classes to the use of electronic resources, databases, remote platforms, social networks, and mobile applications accompanied by educational and extracurricular activities, in the process of self-education and self-development. Moreover, the age of numbers marked the vectors of development of relevant profiles of future professions, directly inscribing the image of these professions into the format of Economy 4.0 [14, p. 183].

The challenges of digitalization of education are diverse, and the answer to them is the desire for transformations. Currently, not only Ukraine but also other countries of the European Union are concerned about the problem of reforming education in the conditions of digital culture and digital economy. The modern situation dictates new requirements for the entire educational system, as well as for learning models and technologies, which are adequate requirements of the time.

The multi-paradigm nature of the digital education space and the desire to ensure the continuity of learning leads to the diversification of the goals and content of education. Therefore, the search for new concepts has been updated. Solving this task is directly related to the need to rethink previous experience and articulate new forms of acquiring knowledge, and test new educational models. In these conditions, one of the dominant theories and practices of learning today is the concept of lifelong learning.

The analysis of relevant research. In the last decade, the number of scientific searches, the subject of which are various theoretical and practical aspects of the digital transformation of education, has increased significantly (O. Dushchenko [1], S. Karpluk [2], I. Kucherak [3], L. Agostini, F. Galati, L. Gastaldi [6], etc.), features of the organization of the educational process by means of digital technologies (M. Marienko and A. Sukhikh [4]), advantages of digital technologies and distance education in an emergency situation (V. Williamson, R. Eynon, J. Potter [16]), paradoxes of participation in digitalization of education (R. Mertala [14]), the potential of open universities and open educational practices (D. Churchill) [7]), trends in the digital transformation of secondary education: common strategic vectors of the USA and EU countries (O. Shparik [5]). That is, the Ukrainian

educational community is actively developing mechanisms for organizing digital education in order to guarantee people's rights to quality education. However, the problem of continuity of professional education in the conditions of European integration and digitalization has not been studied yet.

The purpose of the article is the analysis of strategic documents and accumulated best practices of EU countries to determine the main directions of development of continuous education in Ukraine in the conditions of European integration and digitalization.

The body of the research. In the conditions of the intensive information and communication flow in which modern man is, variability, pluralism and situationality begin to play a greater role than dogmatic, stable structures. That is, modern digital transformations have an extraordinary impact on all spheres of life, including education. All this is updated in some strategic documents of the European Union (EU).

In today's conditions and challenges, EU countries direct efforts to modernize the education system by developing and implementing strategic documents, in particular, The Digital Education Action Plan 2021–2027 [11], A Europe fit for the digital age [9], European Education Area [10]), Europe's Digital Decade: digital targets for 2030 [13], outlining specific actions, funding research and innovation in the field of digitalization, as well as promoting digital educational technologies. The outlined documents focus attention on the need to organize high-quality, inclusive and accessible European digital education; promote participation in the digital public space; stronger cooperation at the EU level in digital education and joint work between sectors to bring education into the digital age; improving the quality and quantity of teaching digital technologies, supporting the digitization of teaching methods and pedagogical tools, and providing the infrastructure necessary for inclusive and sustainable distance learning [9-13].

That is, we can state that the key directions of the development of the educational environment, forms and technologies of the organization of the educational process in the conditions of European integration and digitalization are: expansion of educational computer games ("gamification of education"); use of cloud technologies; implementation of augmented reality solutions [15]; development of social networks in education; application of distance education, development of mass open online courses, new visualization technologies.

The technologies of wireless communication, the Internet, robotics, sensors, etc. will receive the greatest development in education shortly, and the technologies of artificial intelligence, and virtual and augmented reality will become an area of promising development in the next decade [6, p. 11]. The effectiveness and quality of the implementation of large-scale projects of digitization of education in the conditions of the European integration of Ukraine into the world educational space are directly related to the development of continuous professional education, improvement of the key digital skills of a modern specialist in the effective use of new information technologies (interactive means of information processing, mobile technologies, electronic resources, digital communication); orientation on the Internet, the ability to search and process new knowledge, various forms and types of data, necessary information and information; creation of new educational products, educational material using modern information technologies [3]. That is, the continuity of education is actualized.

In its methodological settings, the continuity of education comes from the humanistic idea of understanding a person as an incomplete, permanent subject. This development is objectified by the presence of a certain social and personal need for the constant return of people to the organized process of education [7, p. 52]. This concept enshrines appropriate educational technologies that provide for individual cognitive activity, which does not necessarily have a predetermined nature, spontaneous education, which is implemented on the basis of individual activity in the educational environment [8, p. 170].

Continuous education in Ukraine and the European Union is carried out on the basis of various forms and practices (institutionalized and informal), unfolds online and offline and

is aimed at people of different ages, professions, social statuses, interests, etc. The concept of continuous education in the conditions of European integration and digitalization is adequate for the challenges of today, as it reflects the intentions of modern culture towards non-linearity, variability, and selectivity of the educational trajectory.

The development of continuous forms of education is also provoked by the general situation in the education system. It is no secret that the level of knowledge and skills of graduates often does not satisfy employers, and does not reflect the current requirements for a professional in the era of digitalization and interdisciplinary. The modern economy requires constant updating of knowledge, skills and abilities. Their actualization is a guarantee of personal growth throughout life, as well as an important factor in the development of the country's economy in general [4, p. 33].

People's employment is also changing. The labour market dictates the expansion of the individual's involvement in the process of continuous education. Today's trend is remote work, combining several types of professional activity, often a radical change of profession, turning a favourite hobby into a way of making money. In this situation, a person begins to look for opportunities to obtain specific knowledge "for himself", and the answer to this request is various training options, which turn the acquisition and modernization of knowledge into a continuous process.

An interesting refraction of the concept of continuous education is distance (online) education. Emerging in the wake of the development of multimedia technologies, distance education has taken its place in modern concepts of education without borders. In recent years, the volume of distance education in Ukraine has grown significantly; a special structure has been formed that covers various areas. Among the popular formats of providing educational content, it is advisable to single out training using massive open online courses (MOOCs), skype, videos, webinars, the use of mobile applications, corporate platforms and online universities designed for training or improving the skills of employees, individual training solutions.

Continuity of professional education in the conditions of European integration and digitalization can be ensured by:

1) educational courses aimed at improving professional qualifications and competence;

2) educational courses, which to a greater extent satisfy the interests of listeners in improving personal qualities, developing abilities and skills to support hobbies;

3) implementation of remote forms of education as an additional option in institutionalized formats of education, when the educational institution implements online course programs. A promising direction for the development of such courses is the transition to modular training when the module consists of a set of offline and online blocks for the formation of the competencies required by the user.

Thus, we can state that in the conditions of European integration and digitalization, distance education is a tool for implementing the concept of continuous education. That is, distance education is, first of all, a method of communication in a digital community united by a common theme.

In the conditions of European integration and digitalization, continuous education acquires special value, becomes a strategic choice of the individual, and turns into a special lifestyle, as it corresponds to the idea of self-development, and active involvement of the individual in educational practice. Values that have priority for an individual who consciously chooses continuous self-education as a personal growth strategy are:

– issues of self-development (professional, personal, spiritual) acquire high value and importance for the individual;

– time is understood as a resource for development, which requires special time management skills, knowledge of techniques for its rational use;

– the value of unique, exclusive knowledge and experience, creative realization through participation in various social projects, volunteer activity, hobbies, self-disclosure and self-development increases;

– therefore, the understanding of the value of education received throughout life (additional, distance, informal) increases [15].

Conclusions. The development and implementation of strategic innovation projects and the implementation of digital resources in the conditions of digitization and European integration require the development of continuous professional education in an anticipatory mode based on the well-known principles of adult education (anticipatory training; use of life experience; elective training; actualization of training results; prioritization of independent training), relevance which only increases in such conditions. Continuity of professional education in the conditions of European integration and digitalization will be facilitated by the following activities:

– educational visits, exchange of delegations;

– training in the format of "summer" and "winter" schools with "deep immersion", organization and conduct of author's master classes, use of project technologies and techniques of game technology;

– increasing the share of distance learning to 50% of the total number of courses, using interactive forms (webinars, quizzes, virtual internships, etc.) with the involvement of representatives of educational organizations of the European Union.

New practically-oriented programs of continuing professional education in the use of information technologies, interactive forms of work with students, real and virtual internships, exchange of experience, and mentoring make it possible to take into account the real requests of specialists, create the necessary developing conditions, and work ahead of schedule.

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БЕЗПЕРЕРВНІСТЬ ПРОФЕСІЙНОЇ ОСВІТИ ЯК ІННОВАЦІЙНИЙ ВИКЛИК В УМОВАХ ЄВРОІНТЕГРАЦІЇ ТА ЦИФРОВІЗАЦІЇ

Статтю присвячено проблемі безперервності професійної освіти в умовах євроінтеграції та цифровізації. Метою дослідження є аналіз стратегічних документів і акумульованих кращих практик країн ЄС для визначення основних напрямів розвитку безперервної освіти в Україні в умовах євроінтеграції та цифровізації. На основі здійсненого аналізу стратегічних документів Європейського Союзу встановлено, що сьогодні маємо потребу в якісному освітньому контенті (змістовно та за формою виконання) з можливістю інтерактивної участі та менторингу. Значні переваги для реалізації безперервної освіти має дистанційна освіта, яка зорієнтована на необмежену кількість слухачів з можливістю здобуття знань у зручний час, можливістю вибору зручного (оптимального) темпу навчання. Цей варіант здобуття освіти доступний для людей різного рівня підготовки, віку, соціального стану, здоров'я. Узагальнено, що дистанційний формат значною мірою узгоджується з принципами концепції безперервної освіти, і відповідають динамічно мінливим потребам сучасної людини у прикладних знаннях. Загальною особливістю розглянутих форматів є посилення компонентів неформального характеру освіти, індивідуалізація (кастомізація) освітніх практик, орієнтація на суб'єктивні потреби особистості.

Встановлено, що ключовими напрямами розвитку освітнього середовища в умовах євроінтеграції та цифровізації є дистанційна освіта; гейміфікація освіти та використання хмарних технологій; упровадження рішень доповненої реальності та технологій візуалізації; розвиток соціальних мереж в освіті; розвиток масових відкритих онлайн-курсів. Узагальнено, що безперервності професійної освіти в умовах євроінтеграції та цифровізації сприятиме проведення таких заходів: освітні виїзди, обмін делегаціями; навчання у форматі «літніх» та «зимових» шкіл з «глибоким зануренням», організація та проведення авторських майстер-класів, використання проєктних технологій та прийомів ігротехніки; збільшення частки дистанційного навчання до 50% від загальної кількості курсів, застосування інтерактивних форм (вебінарів, квестинарів, віртуальних стажувань тощо) із залученням представників освітніх організацій Європейського Союзу.

Ключові слова: цифровізація, євроінтеграція, безперервність, дистанційна освіта, цифрова культура, професійна освіта.

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БЛОГ ЯК ЗАСІБ ІНШОМОВНОЇ ПІДГОТОВКИ ЗДОБУВАЧІВ ВИЩОЇ ОСВІТИ ІНЖЕНЕРНО-ТЕХНІЧНИХ ТА ЕКОНОМІЧНИХ СПЕЦІАЛЬНОСТЕЙ

У статті на основі аналізу сучасних досліджень схарактеризовано блог як засіб іншомовної підготовки студентів інженерно-технічних та економічних спеціальностей. Обґрунтовано необхідність комунікації у віртуальному просторі через залучення блогів задля створення додаткового середовища для віртуальної взаємодії зі співрозмовниками.