Some Aspects of Adapting the Educational Process of Ukrainian Higher Education to the Global Challenges of the XXI Century: A Forecast of the Future

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Abstract: Globalization processes of the XXI century have a significant impact on the development of all spheres of society, including the formation and transformation of the higher education system. The

purpose of the article is to analyze the aspects of adaptation of the educational process of higher education to the global challenges of the XXI century through the prism of future transformations. The paper uses general scientific (analysis, synthesis, deduction and induction) and specialized (forecasting, abstraction) methods of scientific work. The principles of objectivity, scientificity, and systematicity were fundamental. Given the theoretical nature of the study, 41 items of the latest relevant literature of 2015-2023 were processed, which highlight the main aspects of the development of modern educational processes and the prospects for these vectors in the future. The results trace the aspects of adaptation of higher education to the requirements of the modern labor market. The need for structural changes in the university education of the future is emphasized. Some changes in the field of humanities education are also traced, which will change towards multidisciplinarity and integration with digital technologies. The conclusions state that rapid digital and technological transformations complicate the training of specialists, but educational institutions in Europe and the United States are actively working to respond to these challenges, including the introduction of lifelong learning and an emphasis on digital technologies, programming, and robotics. It is also argued that humanities education is also undergoing changes, including additional emphasis on a comprehensive understanding of cultural processes and global challenges, the development of critical thinking, digital and technological skills, intercultural competence, ethical and moral values, creativity and innovation, and the ability to communicate effectively and work in a group. The development of soft skills against this background is one of the most important processes.

Keywords: globalization, higher education, transformations, prospects, humanitarian education, technical education.

Introduction

The higher education system has changed significantly in recent years. In particular, a number of global challenges have been noted that have significantly affected the educational process in both global and Ukrainian higher education institutions. These challenges include the introduction of distance learning due to the epidemiological situation, the actualization of military conflicts within Europe (Russian invasion of Ukraine), as well as transformations in the sociocultural and economic dimensions related to globalization and technologization. The question now arises of the timely adaptation of the educational strategy to the realities of modern times. This process will help to ensure that higher education institutions and create an appropriate environment for the effective training of future professionals who will be able to realize the appropriate level of professional competence in the new context.

The analysis of the current reforms of the educational system is an important step in predicting the methods of integrating the necessary components into the educational paradigm of higher education institutions. reality has demonstrated the readiness of the higher education system to introduce radical changes. In particular, distance education has proven to be quite viable against the backdrop of the global COVID-19 pandemic (Nichols, 2020b). Even before 2019, this innovative method of training future students had demonstrated its effectiveness, so the spread of the pandemic only showed its potential (Sewart, 2020). At the same time, other social transformations related to the use of digital technologies and changes in public opinion associated with the penetration of new technologies into all spheres of public life were taking place.

In accordance with the current requirements of modern education, the trend of digitalization (including distance learning) is considered to be the leading one. Researcher Demiray (2017) asked the controversial question "Is the digital era a 'tsunami' for distance education?". In his opinion, so far, distance education using digital technologies has been used at every level of education and learning environment, which undoubtedly forms a limitless platform of opportunities, better than face-to-face learning at any level of the learning environment (Demiray, 2017, p. 179). The spread of the Covid-19 pandemic has contributed to the emergence of many studies on the importance and role of distance education in the face of global challenges (Cavalcanti et al., 2021; Dewi & Wajdi, 2021; Dhawan, 2020; Garivaldis, 2020; Hamzah et al., 2021; Lee, 2020). In particular, Dhawan (2020) drew attention to the following problematic aspect: "Is distance education really a 'panacea' against the backdrop of the spread of global problems of humanity?". The researcher believes that "Online learning is becoming a winner in the midst of chaos" (Dhawan, 2020, p. 6-7). Therefore, the problem of improving the quality of online learning is relevant against the background of modern challenges. According to Gourlay (2020), resistance to digital change will not help any educational institution around the world, as they will be evaluated by the speed of adaptation to global challenges. At the same time, according to Abd-Rabo and Hashaikeh (2021), the digital transformation revolution is inevitable and will affect all social spheres of human activity. At the same time, Baber (2020) raises an important issue of student satisfaction with digital learning tools, according to its results, students are generally interested in distance learning. Nichols (2020b) provides a detailed description of the digital distance education (DDE) model and shows the opportunities and threats of its use in practice.

At the same time, taking into account the trends in the development of the educational environment, the adaptive process of higher education to the global challenges of the twenty-first century includes the formation of digital and information literacy, social skills, and multicultural competence in both students and teachers. For this reason, the work of Bogossian (2022) is important, describing the peculiarities of the formation of the information society through the prism of forecasting. At the same time, Cherng and Davis (2019) studied the key aspects of multicultural competence formation and identified its role in the education system of the future. Eggens (2021) determined that digital competence and social skills will be especially in demand among employers in the future. Nevertheless, clarifying the impact of the modern work environment on higher education remains an urgent problem for further development. In addition, there are not many synthetic works that comprehensively cover the issue of adapting the educational process of higher education to future global challenges.

Research Problem

The main attention is paid to the problems of possible development of the higher education sector in the light of overcoming the challenges of today. First of all, the impact of globalization, especially relevant for the twenty-first century, is discussed. Taking into account the likely vectors of development of the university system, the specifics of training, organization of education, and teaching methods are important for the development of a vision of the future. This also includes the possibility of improving the Ukrainian higher education system, which has additionally faced the challenge of Russian military aggression, which is devastating in economic and human terms. Taking into account such additional challenges has a much broader context in the international dimension than it seems at first glance. Therefore, taking into account such challenges is also relevant and important for identifying trends in the development of higher education in the future.

Research Focus

The study is aimed at identifying and analyzing the manifestations of the interaction between higher education and the main trends in the development of the labor market, digitalization, philosophical perception of man and education in the future. The educational process is directly related to the development of socio-political dynamics, as it is the primary stage of support for all sectors of state institutions. For this reason, a detailed consideration of the very challenges that society will face in the twenty-first century will also be an important basis for introducing adequate transformations in the educational process. Only when all these factors are taken into account will it be possible to draw certain conclusions about ensuring the required level of quality of educational interaction within the functioning of higher education institutions. In addition, the problem of creating a holistic, systematic method of harmonizing higher education in Ukraine that will generally meet modern challenges remains relevant.

Research Aim and Research Questions

The purpose of the study is to analyze the aspects of adaptation of the educational process of higher education to the global challenges of the twenty-first century through the prism of future transformations. In the process of realizing this goal, the main attention will also be paid to the transformation of the labor market (as an important factor influencing education), changes in the paradigms of teaching and application of the humanities, and forecasts regarding the main vectors of development of education in higher education institutions in the future.

Research Methodology

General Background

This article is based on a theoretical study that was conducted in several stages. The first stage involved a theoretical analysis of the problem, which consisted of collecting and studying the relevant scientific literature. The theoretical part of the study is based on the use of general scientific methods, such as analysis and synthesis. Using the method of deduction, the study moved from general scientific provisions to the formation of its own conclusions and hypotheses about the problem of higher education of the future in the context of digitalization of the educational and scientific sphere. In addition, the study used the deductive method to consider the phenomenon of professional training of students as a constantly changing and active development.

Particular attention is paid to the method of abstraction, which is used to identify the features of existing higher education systems in the modern world. The forecasting allows us to draw cautious conclusions about the future of the technical and humanities sciences and the corresponding transformations of higher education.

Research Results

Globalization and the Challenges of the Work Environment: Impact on Higher Education

Researchers dealing with pedagogical issues often proceed from an applied orientation and intentionality to make further predictions about the development of education (Cherng & Davis, 2019; Lee, 2020). They set themselves specific tasks to solve problems faced by educators. These tasks are considered in the context of social transformations that have a major impact on the educational process. Globalization challenges are the main factor that, according to many, determines socio-cultural

transformations (Demiray, 2017). Therefore, it is advisable to use research works that highlight the dynamics of the modern labor market, taking into account social needs. For example, in the context of the US professional field, the need to ensure universal skills for employees in a globalized work environment is substantiated. The experience of the American workplace can be useful in the process of developing vocational education, given the pronounced Americanization that is a leading feature of modern globalization (Murphy et al., 2022).

It is also important to take into account the realities of the labor market in the EU member states. The purpose of implementing educational innovations on the way of integration into the European space of higher education systems is to:

- providing conditions for personal development and creative self-realization of each student of higher education;

- development of equal opportunities for quality education and further evolution learning system;

- improving the quality of education, training, qualification, obtaining the necessary competencies, and awareness of the responsibility of specialists for the work they do (Pinheiro & Santos, 2022);

- improving the scientific and methodological support of higher education institutions;

- Improving the professionalism and social status of teaching and research staff;

- improving the quality and competitiveness of future specialists, meeting the needs of the educational services market and the labor market, improving the employment situation of graduates of higher education institutions, and providing them with their first job (Pinheiro, & Santos, 2022).

Globalization processes, in particular the integration of economic and cultural spaces, determine the importance of international educational initiatives. The need for further integration of professional communities from different countries makes it expedient to expand mobility programs in the process of educational and professional activities (Stephanidis & Antona, 2022). A separate factor that will significantly affect the institution of higher education in the future is the trend of robotization (Hamzah et al., 2021). Accordingly, the work environment is undergoing significant changes, as production specialties are no longer needed. Moreover, as the experience gained during the crisis period of quarantine restrictions shows, the leading way to overcome the crisis is currently the spread of information and communication technologies (ICT) in new areas of life.

In the near future, education will be focused on digitalization and the spread of ICT in various forms, and robotization in the manufacturing sector will only increase (Wojciech et al., 2021). In particular, international online trade has become more active, which has led to an increase in demand for specialists in the economic and logistics sector. Currently, a form of higher education that will provide the possibility of professional realization in several specialties can be considered relevant for the training of specialists, given the growing need to change jobs under the influence of global workspace restructuring (Khan & Vuopala, 2019; Kelly, 2021).

Researchers also emphasize the importance of further improving lifelong learning as a systemic phenomenon of the pedagogy of the future (Reid, 2020; Stoika, 2022). The process of learning and self-development, which takes place continuously throughout a person's life, is an obvious extension of the thesis that there is no firm specialty (Garivaldis, 2020). The concept of lifelong learning also confirms

that the educational process in modern circumstances cannot have a fixed end and end with a college or university diploma.

Instead, education is becoming a continuous process that is part of a person's life and covers the entire productive period. Lifelong learning involves the continuous updating and development of knowledge, skills, and competencies to achieve personal and professional goals (Devadze et al., 2022). This can be achieved by participating in various forms of learning, such as refresher courses, workshops, seminars, webinars, etc. (Abd-Rabo & Hashaikeh, 2021). Continuing education can also consist of self-study, primarily through the active reading of books relevant to the specialty, watching video tutorials, organizing and conducting research, etc. Lifelong learning is important because it allows people to improve their talents, abilities, and knowledge, which are necessary for professional and personal achievements (Eggens, 2021). It also fosters critical thinking, improves employee skills, expands opportunities for a career change, and contributes to the development of society as a whole. In the context of transformations in the global labor market, the strategy of using lifelong learning is a relevant response to the likely changes in the educational trajectory associated with the transformation of stakeholders' requirements for future professionals - their employees (Shattuck, 2018). Changes in technology and digitalization are equally dynamic, and studying them is also part of lifelong learning - with the transition to updated technological chains, the training system will also change, and lifelong learning will help to capture the peculiarities of this change.

Transformation of Higher Humanitarian Education: Trends in Thinking

Higher education in the humanities in the twenty-first century will require students to have a broader range of knowledge and skills to be able to work successfully in different fields and solve complex interdisciplinary problems (Spash, 2015). The main areas of higher humanities education in the future may include:

1.Comprehensive understanding of cultural processes and global challenges arising from the development of technology and globalization.

2.Developing critical thinking skills that allow you to analyze complex problems, draw conclusions based on evidence and arguments, and understand and evaluate different points of view (Williams et al., 2023). The humanities are often connected to other fields of knowledge, such as science, technology, and the arts. In the future, we can expect to see more courses combining disciplines from different fields of knowledge, allowing higher education students to broaden their knowledge and develop new skills.

3.Development of digital and technological skills necessary for effective work in the modern world. Various digital tools are already being used to teach humanities, such as virtual classrooms, online courses, and gaming platforms (Martinez-Nuñez et al., 2016). In the future, it is expected that such technologies will become even more accessible and developed, which will increase the effectiveness of learning and skill development.

4.Development of intercultural competence that allows you to effectively communicate and work with people of different cultures and nationalities (Suri & Chandra, 2021).

5.Developing ethical and moral values that allow students to understand and evaluate their actions and the actions of others in accordance with generally accepted standards of behavior.

6.Development of creative and innovative abilities, which allows students to develop new ideas and solutions, ensure intellectual development and change of society.

7.The ability to communicate effectively and cooperate in a group, which allows students to work successfully in a team and achieve common goals. Humanities education is not limited to the acquisition of specific knowledge but also focuses on the development of social skills such as communication, leadership, and collaboration (Nichols, 2020a). In the future, we can expect more attention to the development of such skills.

The latter emphasis is extremely important in terms of the peculiar "confrontation" between hard-skills and soft-skills in modern paradigms of educational development (Rosa et al., 2022). The ability to work in a team, endurance in performing tasks, the ability to persuade or make the necessary compromises are just a limited list of interpersonal skills in demand in the modern labor market, which are extremely valuable when selecting candidates for vacant open positions (Mohamad et al., 2017). For this reason, stakeholders pay attention to such competencies during interviews. At the same time, hard-skills are still an important factor in modern pedagogy, which still retain their importance in the process of acquiring the necessary knowledge, skills, and abilities. Hard skills consist of professional knowledge, professional skills, and practical skills that are necessary for effective and correct decisions in the field of performing actual tasks. However, in the future, according to researchers, the problem with using soft skills is that they are difficult to measure empirically, so the assessment of such qualities (e.g., the ability to be proactive, demonstrate high performance in teamwork, be creative, etc.) remains extremely subjective (Kem, 2022; Mohamad et al., 2017). University systems in Europe and the United States demonstrate special attention to soft skills. In the context of distance learning, this vector has not undergone major changes; on the contrary, the ability to work and find a common language with representatives of different cultures is extremely important in a remote work format.

Discussion

Therefore, researchers identify several important globalization challenges for the modern higher education system. Among them is the further evolution of distance education (Cavalcanti et al., 2021; King, 2020; Zawacki-Richter & Jung, 2023). The growing popularity of this innovative model of organization can lead to a decrease in the need to organize classroom classes, which simultaneously changes the attitude to the functioning of university campuses, classrooms, dormitories, etc. Distance learning also has its impact on the development of student communities and acquaintances between students, requirements for pedagogical methods, and means of conducting the educational process. Obviously, this form of organizing the educational process will not disappear completely after the COVID-19 pandemic is over and will continue to evolve (Dhawan, 2020; Dewi & Wajdi, 2021).

The effectiveness of distance learning is not inferior to traditional forms of teaching. This is confirmed in the works of many modern researchers (Devadze et al., 2022; Dhawan, 2020; Murphy et al., 2022; Parsons et al., 2022; Pinheiro & Santos, 2022). In addition, this form of education opens up opportunities for the internationalization of university education (Baber, 2020). The growth of international connections can allow students and teachers to gain experience and knowledge from different cultures and higher education systems, but it can also lead to increased competition between universities and change approaches to student enrolment.

Researchers' assessments of the importance of technological innovation also seem to be fair (Bogossian, 2022; Zhang & Aslan, 2021). The development of technology can create new learning formats, improve access to knowledge, and ensure deeper integration with other fields of science and technology. Expanding the diversity of higher education will increase the number of specialties and study programs (Sardi & Carvalho, 2022; Simpson, 2013). At the same time, there may be an increase in

competition between higher education institutions, which may result in some of them ceasing to exist as less competitive (or significantly limiting the quality of educational services provided). A related challenge is funding (Parsons et al., 2022). Securing funding for the development of higher education is a challenge that can affect the quality of education and accessibility for different social groups.

Acquiring the necessary level of soft-skills will also continue to be a challenge for both the humanities and the sciences (Gourlay, 2020). The training of university specialists should take this aspect into account, which is in line with the future development of teaching and learning emphases. It is impossible to predict exactly what features of teaching humanities will prevail in the future, as much depends on technological and cultural trends that change over time.

Obviously, the most progressive forecasts of higher education development are possible under conditions of stable development of the international situation (Guri-Rosenblit, 2017; Kirac et al., 2022). At the same time, the Russian aggression against Ukraine has demonstrated that other ways of development are possible. The flip side of globalization may be an anti-globalization process in which individual countries or regions may be closed to the world community (Stephanidis & Antona, 2022). In particular, since April 2022, Russian and Belarusian higher education institutions have been excluded from the Bologna system. This news was received calmly by the governments of these countries, and through propaganda opportunities, was presented in a positive way - in the spirit of the possible restoration of the "best in the world" Soviet educational system.

In fact, such actions by authoritarian regimes may pose a certain danger to the development of higher education in the light of globalization in the future, although they will primarily affect Russian and Belarusian citizens themselves. At the same time, China or other countries with authoritarian closed regimes may also demonstrate a desire to close their own educational systems. At the same time, such actions should be perceived as a side element of political confrontation, since in today's realities, no special alternatives to educational globalization have been proposed.

These challenges can be summarized in the table below (See Table 1).

Table 1

Challenges to the Modern Higher Education System

Challenges to the higher education system	"Answers" to the challenges of the higher education system
Evolution of distance education	Distance education has demonstrated its effectiveness as a separate innovative mechanism for organizing the educational process. Further development of distance education is a natural continuation of the current stage of its use.
Implementation of technological innovations	The next transformations in the technology sector are difficult to predict at this stage, as the dynamics of change in digital technologies is high. At the same time, the use of new digital solutions can improve the quality of education, although it requires training and adaptation of students and teachers.
The need for an appropriate level of soft-skills	Working with other people, despite technological advances, remains relevant, even perhaps more so than before.

Increased competition between higher education institutions	Increased competition between educational institutions may lead to better conditions for the best institutions to continue operating. This aspect will contribute to the quality of higher education.
Stable development of the political and international situation	Given current trends in the new formation of military and political blocs, the consequences of this challenge are difficult to predict. Outright and aggressive anti-globalization actions do not lead to an improvement in international peace and, in particular, in the quality of education.

Source: authors' development.

Thus, globalization challenges and responses to them generally contribute to improving the quality of higher education. At the same time, it is difficult to take certain perspectives into account, as it is impossible to determine the exact consequences of the unfolding political tensions.

Conclusions and Implications

Thus, higher education in the twenty-first century will play an important role as a condition for employment, professional and social skills, and one of the circumstances of globalization. Responding to globalization challenges will require structural changes in the university education of the future. First of all, we are talking about the challenges of the labor market. The training of specialists may become more complicated due to rapid digital and technological transformation - changes in software, for example, are happening faster than a full-fledged four-year bachelor's degree. In particular, educational institutions in Europe and the United States have paid considerable attention to responding to this challenge. One of the mechanisms is the introduction of lifelong learning as a phenomenon that will accompany human life and require constant self-improvement. Another manifestation of adaptation to the likely changes in the higher education system will be an emphasis on digital technologies, programming, and robotics. Manufacturing professions are undergoing major changes, and the focus of training for such professionals will certainly include mastering software and ICT skills.

Humanities education is also undergoing changes. It will include additional emphasis on a comprehensive understanding of cultural processes and global challenges, the development of critical thinking, digital and technological skills, intercultural competence, ethical and moral values, creativity and innovation, and the ability to communicate effectively and cooperate in a group. Particular emphasis can be placed on the development of soft-skills as special requirements for future professionals. It is worth noting that for certain political reasons, educational systems in certain countries may find themselves on the sidelines of globalization processes, but this will result in scientific and pedagogical stagnation rather than a vector of independent development.

Suggestions for Future Research

The problem of adapting the educational process to the 21st century challenges has other promising areas for research, as modern society faces numerous new problems and tasks that require a qualitative renewal of the educational system. Some of the possible research perspectives on this topic include:

1.A thorough analysis of the technological transformation of the education sector based on the introduction of new methods and forms of interaction with all participants of the educational process. The development of information technology, artificial intelligence, virtual and augmented reality creates

new opportunities for education. The research can focus on the use of these technologies that improve the learning process, engage students in dynamic learning activities, and develop new competencies.

2.The development of critical thinking and the creative design thinking. Given that these trends are relevant in modern pedagogical thought; further empirical analysis of their development in practice against the background of the impact of global problems is an important topic for further investigations. Changes in society and the labour market require people to be able to analyse, think critically, solve complex problems, and be creative. The research can analyse methods that foster these skills in students and learners, as well as test the effectiveness of different learning approaches.

3.Given that the Russian-Ukrainian war is still ongoing, it is not yet possible to state its final impact on the adaptation of Ukrainian education. Accordingly, a reassessment of this adaptation in the near future will be a promising direction.

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