SUSTAINABLE DEVELOPMENT OF UNIVERSITIES IN THE CONTEXT OF THE COVID-19 PANDEMIC

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ABSTRACT

The study is devoted to the impact of the crisis on changing the priorities of sustainable development. To neutralize the effects of the crisis, an approach to the formation of the structure of sustainable development of universities in crisis conditions is proposed and the procedure for coordinating tactics and development strategies during the crisis is established. The difference in the formation of sustainable development priorities in the face of threats is established. It is proved that sustainability is achieved through the introduction of flexible approaches, stabilization of the level of danger, re-profiling of all resources and ensuring a stable level of funding. Stratification of threat mitigation methods and tools is proposed. It is established that adaptive coordination of urgent tactical tasks and only secondarily of the strategic goal is required. The change in the significance of influencing factors in ensuring the appropriate level of training during the pandemic in universities in developed and developing countries has been studied. A systematic approach to the formation of the structure of the implementation of sustainable development of universities in a crisis has been proposed. The peculiarities of the formation of factors influencing the effectiveness of training and the importance of the qualities of leaders in crisis conditions in Ukraine have been pointed out.

Keywords: crisis conditions, Covid-19, system approach, structure of sustainable development of universities, methods and tools for leveling threats, efficiency of the educational process

JEL Classification: F42, I23, I25

INTRODUCTION

The challenges of the Covid-19 pandemic to the sustainable development of institutions of higher education (IHE) and the achievement of the United Nations Sustainable Development Goals (SDGs) have prompted the discovery of new adaptation techniques, methods and tools to address the threats of higher education.

That is, the pandemic has become not only a threat to the achievement of the SDG but also an incentive for the rapid introduction of innovation, rethinking the importance of each specific goal in the daily work of higher education.

The Covid-19 pandemic has posed not only pragmatic technological and informational challenges to university teams but also challenges to new values. In particular, there was a dilemma regarding the implementation of university funding, which caused, for example, negative changes in the staffing profiles of IHE and problems with proper implementation of previously recognized important goals of sustainable development, first of all, goal 4 on inclusive and equitable quality education.

At the same time, it should be noted that the acquisition of new innovative techniques, methods and tools, as experience has shown, in particular, in Ukraine, was universal.

The introduction of innovations and new tools and approaches to the educational process has helped, in particular, to implement training during intense large-scale hostilities, which covered almost half of the country, heavy rocket and artillery shelling, mass emigration affecting all levels of the population, including teachers and students of IHE.

LITERATURE REVIEW

The analytical review [1] examines the trends of research in 2020-2021 on sustainability during the COVID-19 pandemic, given the UN SDGs and the potential risks of learning and teaching and the need to implement distance learning practices. Given the need to prepare students for activities in the direction of sustainable development, tools for developing such experience are considered [2]. The use of binary logistic regression for the analysis is quite interesting [2]. Given the COVID-19 pandemic, it is useful to study the problem of developing strategic planning in higher education to achieve the goal and objectives of sustainability [3]. The approach to the introduction of stratification of response types used during the COVID-19 pandemic, which leads to the use of various tools and techniques [4] is also promising, in our opinion. The authors [5] argue that after the COVID-19 pandemic it is necessary to maintain a mixed model of the educational process in educational institutions using an innovative educational model implemented in the period before the pandemic. In [6], teaching and learning online during quarantine and tools for the restoration of educational activities and discourses as an effective process of ensuring the educational process in the education system are studied. A detailed review of the experience of using social networks to ensure the effectiveness of sustainable education in the era of COVID-19 is made in [7]. In this direction, the experience of the online model as a sustainable mixed approach to teaching and learning in higher education is described in [8]. A review of Goal 4 of sustainable development in the context of the COVID-19 pandemic using the example of online teaching, which we used in the following analysis is given in [9]. The analytical review [10] analyzed the measures implemented in higher education to respond to the pandemic and ways to ensure sustainable development. The article [11] analyzes the Australian experience of overcoming the stress response of universities to the pandemic and the shortcomings of educational policies of university management, which contributed to the crisis. The application of interesting innovative strategies in the work of IHE tutors, their training, standardization of processes and information are discussed in [12]. The analysis of key competencies for sustainable development in higher education during the pandemic was studied in [13]. Trends in changing approaches to higher education for sustainable development (ESD) have been studied in [14]. Regional approaches to ESD in Pakistan [15], the United Kingdom [16] and Spain [17], Oman, Nigeria and Cambodia [18] are discussed in the relevant papers. The impact of the pandemic on the growing need for highly qualified engineering personnel and the peculiarities of their training was studied in [19]. The scientific reviews [20-23] is devoted to the issue of building multi-partner networks, which, according to the authors, are key drivers for innovation in management, planning, and openness to achieve SDGs.

AIMS AND OBJECTIVES

The given analysis of scientific works concerns research of various aspects of the formation of sustainable development of universities in the conditions of a pandemic. But the available research does not systematically cover the overall crisis conditions of universities where the pandemic is just one type of crisis. In times of crisis, there is a need to better understand the methods and tools for leveling threats to the institution of higher education, to study the impact of crisis conditions on changing the rank of priorities in higher education to achieve sustainable development goals and strategies for sustainable development. And first of all, what approaches from the experience gained by the world community, and how exactly, should be implemented in Ukraine?

To study the impact of the crisis on changing sustainable development priorities, to offer an approach to the implementation of sustainable development of universities in crisis conditions, to establish a procedure for coordinating tactics and development strategies during the crisis.

METHODS

General and special methods of cognition were used for scientific research: a critical analysis in the formation of the topic and purpose of the study; content analysis to review the literature and highlight unresolved aspects of the problem; comparative analysis to find differences in approaches to sustainable development at different times: induction and deduction for stratification of techniques, methods, tools for leveling threats; ascent from the abstract to the concrete to establish the factors of learning effectiveness: system analysis for the formation of the structure of sustainable development in a crisis; analysis and synthesis in identifying the peculiarities of the tools and methods of achieving sustainable development.

RESULTS

Prior to the spread of COVID-19, the implementation of the SDG for the Institute of Higher Education was a priority in all areas of higher education: academic activities (research, teaching), economic (economic efficiency, cooperation with industry and business), social sphere, ensuring comprehensive access to inclusive and fair quality education, gender equality), institutional contacts (cooperation with the government, interaction with the public sector). The advent of the pandemic changed that dramatically.

With the onset of the COVID-19 pandemic in higher education, the process of rethinking the importance of each specific goal of the SDG in practice and operational planning of higher education began. In particular, the following goals were re-evaluated: the importance of Goal 4, for inclusive and equitable quality education, provided Goal 8 is achieved, to ensure decent work and economic growth (significance was determined by only $\sim$ 50% of researchers); the importance of goal 9 in terms of industrial development, innovation and infrastructure was determined by $\sim$ 37.5%. The importance of the implementation of the SDG through the integration and inclusion of the SDG in the curriculum was determined by $\sim$ 12.5% [1].

This has changed the strategic planning of sustainable development in higher education. This planning is used by the university to set the goals of its work and determine the scope of its obligations to implement specific measures to achieve the SDG and, in fact, by the university and its structures, staff and graduates, all involved in the activities of the particular IHE. In addition to purely value orientations, such planning has quite specific tasks, for example, time planning and, accordingly, the coordination of financial revenues and expenditures of universities.

Strategic planning for sustainable development, as defined in the scientific literature, should also increase the effectiveness of the integration of the three components of sustainable development; economic growth, social development and environmental protection in the work of universities. The problem is that the universities that implement the SDG face a number of problems in solving this task, in particular, limited resources and a lack of qualified personnel with the appropriate level of qualifications and motivation.

It should also be noted the reduction of the level of implementation of an important component to ensure a quality educational process - the forced cancellation of the share of laboratory and practical classes in the entire volume of training courses. This, in particular, has led to a lack of practical skills in the work of specialists, which, in turn, has reduced the possibility of future implementation of the SDG in the workplace.

Tutoring becomes an important tool in increasing the quality of education in case of increasing the share of possible omissions of certain stages of the educational process due to illness or patient care [12]. Therefore, the use of this tool and similar tools, the impact of which on the effectiveness of training was relatively insignificant before the pandemic, can be extremely significant in the period after the peak of the disease.

Online education has significantly increased the effectiveness of such tools in boosting the effectiveness of learning as SNS (Social Network Service). This tool demonstrates the usefulness and effectiveness of adapting to educational practices. A certain problem here is that SNS does not have a standardized methodological approach, so the use of SNS is based on the intuitive-expert approach of teachers. The undoubted advantage of this tool is the growth of the level of academic communication, collective cooperation and effective exchange of resources, skilled construction of knowledge, the cumulative effect of mutual learning among students and automation of social learning processes. The use of SNS to ensure sustainable learning in the educational practice of higher education, in our opinion, requires the creation of an appropriate methodological framework, monitoring and detailed planning of the educational process.

The use of interactive mixed and flexible work models during the pandemic has created problems for unequal working conditions for different workers through, for example, inconsistent application of rules, technologies and the application of different basic principles for individual workers.

The analysis also found out that in times of crisis leadership qualities of the management, according to the known stratification of leadership styles. namely: "authentic leadership", "servant leadership", "leader-member exchange", "situational leadership", "distributed leadership", and so-called "ineffective forms of leadership" begin to play an important impact on the level of effectiveness of reforms to neutralize the impact of threats on the activities of educational teams and the effectiveness of the educational process in a particular university. And, importantly, the effectiveness of reforms in the work of IHE goes downward according to the above-mentioned leadership styles in educational institutions. It is the managers with existing leadership styles facing components of the environment, in particular, social networks or financial management tools of the university that reveals the readiness of managers to act in times of uncertainty and change.

At the same time, the pandemic, reducing the frequency of personal contacts and, in addition, increasing the frequency of interactive contacts according to the psychophysiological characteristics of man contribute to reducing the leader's influence on subordinates. This, in turn, requires an increase in the charisma level of leaders, and their ability to change their management paradigms in the pre-crisis period for the effective implementation of the goals of IHE reforms.

This applies, for example, to the pace of digitalization of the educational process and the need to update in this regard the staff of teachers, the number and quality of technical staff serving the educational process, the value of physical presence at the workplace, criteria for evaluating performance, comparing individual productivity and productivity of work teams.

One of the tools for implementing the new IHE strategy is to create effective teams, in particular, using approaches to the formation of emotional and value bases. In this regard, Western researchers note the implementation of the so-called "campus approach" in practice. Techniques, methods and tools for leveling the threats for higher education as an institution can be stratified into social, technological, informational, methodological, educational categories.

All these categories should be combined into a single complex using the methods of systems theory. This is due to the fact that only a systematic approach can realize the effective implementation of sustainable development of IHE in crisis conditions and rapid adaptation to multifaceted challenges. The mentioned complex must meet all the features inherent in the system: integrity, emergence, inherence, etc. and be aimed at a single goal - to ensure the proper quality of education. And the methods, techniques and tools used to ensure this goal must meet all the criteria for the formation of the proper quality of the educational process.

The developed scheme of formation of the structure of the implementation of sustainable development of universities in crisis conditions using a systematic approach is presented in Fig. 1. We draw your attention to the fact that coordination with the Sustainable Development Goals should take place at all stages of the implementation of sustainable development of universities in crisis conditions.
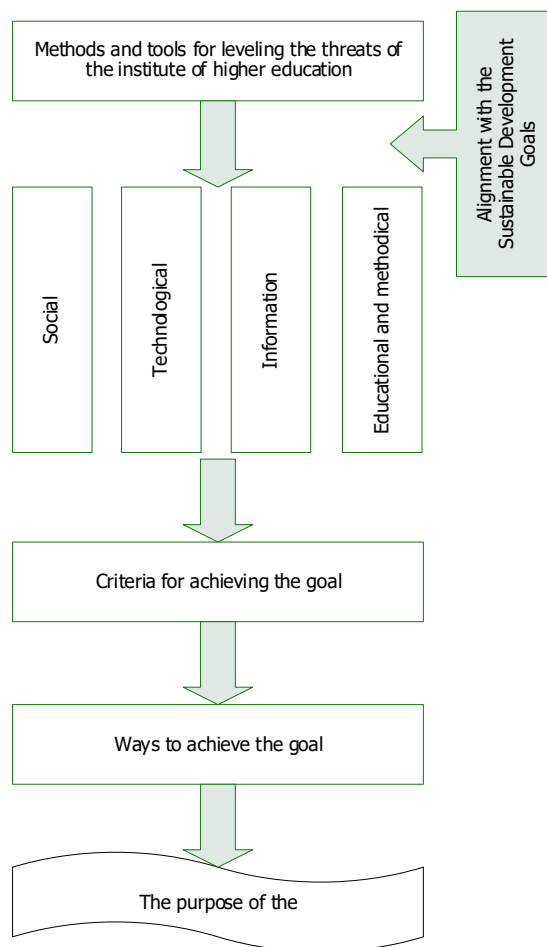

Figure 1. System approach to the formation of the structure of sustainable development of universities in crisis conditions.

According to the results of the study, the challenges of the pandemic affected the effectiveness of higher education differently in countries with different levels of economic development. The sharp change in the practice of teaching and learning in higher education has produced an uneven shock effect on the effectiveness of education in different countries.

The degree of unpreparedness of teachers for online teaching, for example, and students, in their turn, for limited access to digital technologies, absence or presence of stable Internet traffic in developed countries and developing countries was different (Fig. 2 and Fig. 3).

As the analysis, which is still complicated by the fleeting conditions of hostilities and mass migration, demonstrates, separation of influence factors in ensuring the appropriate level of efficiency of the educational process presented in Fig. 3 is more characteristic for the Ukrainian realities.
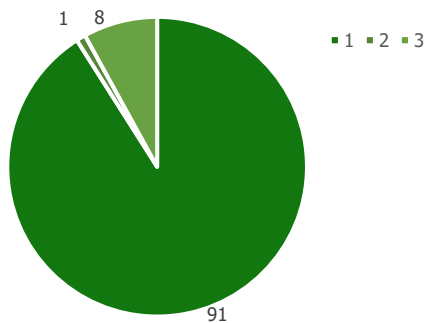

Figure 2. The share of influencing factors in ensuring the appropriate level of efficiency of the educational process in developed countries. Note: 1 - motivation; 2 - technologies, 3 - instruction methods. *(Source: built on the basis [1, 18, 21-23)*
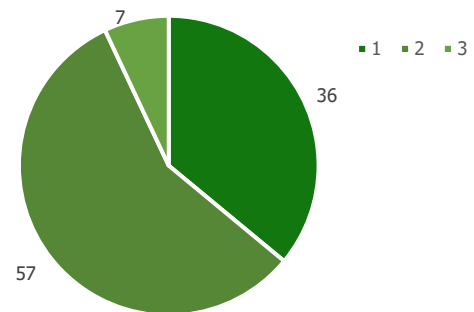
Figure 3. The share of influencing factors in ensuring the appropriate level of efficiency of the educational process in developing countries. Note: 1 - motivation; 2 - technologies, 3 - instruction methods. *(Source: built on the basis [1, 18, 21-23)*

The problem of reassessing the attitude of university management and staff to providing SDG has become particularly pressing in Ukraine, where the crisis period of the COVID-19 pandemic was absorbed by an even bigger and more terrible war crisis. Universities were forced to urgently address more urgent and severe problems - ensuring the physical survival of teachers and students, reorganizing the work in the conditions of mass movement of the population and constant air alarms.

From this point of view, let's consider as an example the implementation of Goal 4, which states that achieving sustainability is based on "ensuring inclusive and equitable quality education and promoting lifelong learning for all". The choice of Goal №4 determines that this goal is most inherent for universities according to their activities, tasks and mission.

In the crisis conditions of the war complicated by the pandemic, even the formulation of Goal №4 acquires a new, unprecedented meaning. The task is to train the wounded. training of those who are in hospitals, who suffer from post-combat syndrome after receiving combat wounds, etc.

For universities in other countries, the tools for implementing Goal №4 are organizational measures for students' access to inclusive education, rethinking of staff work, and flexibility in choosing pedagogical decisions, in particular, given the share of blended learning components. All these tools can be implemented in Ukrainian conditions, but their content is different from the content of similar tools in other countries. In our opinion, the charismatic qualities of the leader of the educational institution and his team will be decisive here.

Given the analysis of influencing factors in ensuring the appropriate level of efficiency of the educational process and changes in their share from country to country, access to technology begins to play a significant role in Ukrainian reality despite the importance of motivational factors. In times of war, this means, in particular, not only the existence of a stable internet but also the availability of a sustainable supply of electricity. In addition, an important factor is not only the availability of technological equipment, which in other countries is limited, in particular, by the lack of ф sufficient number of electronic microchips but also, for example, the availability of financial resources for students and even teachers, especially those who lost property during the bombing. Moreover, the lack of supply of computer equipment to some regions due to damage of logistics networks by the enemy is becoming an important technological aspect.

The way out of this, in our opinion, along with online teaching, is the formation of training courses in audio and video presentation and their subsequent placement in cloud resources with password access of students to them. Formal registration of a student after listening to the course can take place in the appropriate log files. The need for registration should be related not so much to disciplinary checks or checks on the level of motivational factors of the student, but, above all, unfortunately, to his physical existence.

Lack of access to technology by certain groups of students can be compensated by returning to the placement of equipment in certain locations and organizing access to it by student groups.

The fact that the use of digital resources ceased to be directly correlated with sustainable consumption and production and thus to influence other, broader issues of sustainable development of society became an important difference between Ukrainian realities and other countries during the war and pandemic.

At the same time, the growing negative impact of technological factors must be offset by an increase in the role and, consequently, the share of motivational and methodological factors. These current trends are opposite and their ratio in certain regions of Ukraine is changing rapidly and, unfortunately, relevant statistical information is missing.

Let's consider, from this perspective, the achievement of Goal 8, which requires "stable, inclusive and sustainable economic growth, full and productive employment and decent work for all" in order to be sustainable and, at the same time, Objective 9, which points to the need to "build sustainable infrastructure, promote inclusive and sustainable industrialization and stimulate innovation". In the event of a comprehensive crisis, in order to achieve Objective 8 and Objective 9 together, the institution of higher education must form, first, the preconditions for the country's sustainable development and, secondly, to solve the local problem of providing "full and productive employment and decent work" for university staff and the proper organization of the functioning of related infrastructure. This means that the mission of the university is to provide organizational components of such a sustainable model of activity that ensures the viability of its own structure and its components: staff, students, resources of all kinds, etc., and external structures, including the regional community, as much as possible. And to what extent does this correspond to the general formulation of the so-called "Triple result" is, in this case, secondary.

The tools to achieve Goal 8 and Goal 9 in these conditions must also be adaptive. Their content is also significantly different from the content other countries, for example, the provision of personal protective equipment for the staff and students, the organization of a safe environment, and so on.

This leads to the conclusion that sustainability is achieved by implementing flexible approaches in work, stabilizing the level of security/danger for the staff and the students, re-profiling all available resources and ensuring the stable formation of the necessary finances. That is, the problem that arises in determining the priorities of sustainable development should be a rationally coordinated achievement of tactical goals and long-term goals of the university. This approach is radically different from the implementation of tactical and strategic planning in the pre-crisis period. This determines, in particular, the fact that, unfortunately, such changes in the learning conditions in the Ukrainian realities should lead to a decrease in academic performance and, in general, the quality of higher education at this stage.

Conclusions. The study found out that approaches not only to the implementation of sustainable development goals by IHE in the pre-crisis period and during the crisis are radically different. Not only the degree of importance of each of the goals of sustainable development and their ranking but also the interpretation and the definitions of these goals began to be re-evaluated. This led to the use of various methods and tools to level the threats of the institute of higher education, approaches to the implementation of the activities of educational institutions.

It is indicated that the methods, techniques and tools for levelling the threats of the institute of higher education can be stratified into social, technological, informational, methodological, educational categories. It is established that all these categories should be combined into a single complex using the methods of systems theory.

A systematic approach to the formation of the structure of sustainable development of universities in crisis conditions is proposed, and its stages are determined. It is established that in times of crisis a leadership role of management according to the known stratification of leadership styles begins to play an important impact on the level of effectiveness of reforms to neutralize the effects of threats on the activities of educational institutions and the effectiveness of the educational process.

The change in the weight of influencing factors in ensuring the appropriate level of quality of the educational process in developed and developing countries has been studied. The peculiarities of the formation of the ratio of factors in the conditions of war and pandemic, which occur in Ukraine at the same time, are pointed out. As an example, the application of tools, techniques and methods of achieving higher education goals №4, №8 and №9 of sustainable development in the

crisis, and the peculiarities of the implementation of these goals during the crisis in Ukraine are analysed. It has been proven that sustainability is achieved by implementing flexible approaches in work, stabilizing the level of security/danger for the staff and students, re-profiling all available resources and ensuring the stable formation of the necessary finances. It is established that the problem that needs to be solved first of all when determining the priorities of sustainable development should be the rational coordination of the adaptive way of achieving, above all, tactical goals and, only then, the long-term goal of the university. This differs from the implementation of tactical and strategic planning in the pre-crisis period.

It is pointed out that changes in the crisis conditions of learning in the Ukrainian realities should lead to a decrease in academic performance and, in general, in the effectiveness of higher education at this stage.

CONCLUSIONS

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СТІЙКИЙ РОЗВИТОК УНІВЕРСИТЕТІВ В УМОВАХ ПАНДЕМІЇ COVID-19

Дослідження присвячено вивченню впливу кризи на зміну пріоритетів сталого розвитку. Для нейтралізації впливів кризи запропоновано підхід до формування структури впровадження стійкого розвитку університетів у кризових умовах і встановлено порядок узгодження тактик і стратегій розвитку в період кризи. Установлена відмінність формування пріоритетів сталого розвитку в умовах загроз. Доведено, що стійкість досягається впровадженням гнучких підходів, стабілізації рівня небезпеки, перепрофілювання всіх ресурсів і забезпечення стабільного рівня фінансування. Запропонована стратифікація методів та інструментів нівелювання загроз. Установлено, що в умовах кризи потрібне адаптивне узгодження нагальних тактичних завдань і лише в другу чергу – стратегічної мети. Досліджено зміну значимості чинників уливу в забезпеченні належного рівня ефективності навчання за пандемії в закладах вищої освіти розвинених країн і країн, що розвиваються. Запропоновано системний підхід до формування структури впровадження стійкого розвитку закладів вищої освіти в умовах кризи. Указано на особливості формування чинників уливу на ефективність навчання та на значення рис лідерів за кризових умов в Україні.

Ключові слова: кризові умови, Covid-19, системний підхід, структура сталого розвитку університетів, методи й інструменти нівелювання загроз, ефективність навчального процесу

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