

The management strategy in the educational institution during the crisis caused by COVID-19 pandemic

Yelyzaveta Mykhailova¹, Nataliia Savina¹ and Ihor Tymoschuk¹

¹National University of Water and Environmental Engineering, 11 Soborna Str., Rivne, 33000, Ukraine

Abstract. The research is devoted to the impact of the economic crisis caused by COVID-19 pandemic on educational institutions. This impact is highlighted as two side processes, which appears due to the impact of economic crises on education and, from the other side, due to the inability of education to satisfy the demands of information society, as well as to predict the consequences of such impacts on the socio-economic sphere of society. The negative effect on education is overviewed from the perspective of reducing funding and reducing the number of participants in the educational process. At the same time there is an internal crisis in the education sector, which is developed through reducing the quality of education and lack of necessary forms of education. The purpose of the research is to analyse the ability of education to overcome the destructive effects of economic crises and the ability to change according to the needs of information society. The development of an anti-crisis management strategy in the educational institution during the crisis caused by COVID-19 pandemic should target the most problematic components of the educational sphere: funding, number of participants and institutions, quality, and forms of education. That is why the strategy of anti-crisis management can be represented in three main components: virtualization, HR policy, branding. Thus, from scientific and theoretical perspectives the provided research can be a basis for transformation of education, which may be adapted to the need's modern society. This strategy was successfully implemented during 2020-2021 years, and the results of which is represented in the research.

Keywords: anti-crisis strategy, educational institution, COVID-19 pandemic impact, economic crisis

1. Introduction

The economic crisis, triggered by COVID-19 pandemic, can be distinguished as a two-sided process with the transformation of socio-economic processes and with the renovation of theoretical patterns. At the same time for developing countries, the effects of the economic crisis have the greatest impact on social processes. Targeting on neutralisation of negative consequences, all efforts are focused on the part of the social sphere that directly depends on basic economic indicators and does not take into account the relatively autonomous spheres, as well as the system of basic and applied science and innovation. That is why education, which is key in the system of knowledge economy, becomes vulnerable to the effects of economic crises, namely

✉ e.v.mikhailova@nuwm.edu.ua (Y. Mykhailova); n.b.savina@nuwm.edu.ua (N. Savina);

i.o.tymoshchuk@nuwm.edu.ua (I. Tymoschuk)

🌐 <https://tinyurl.com/uu34hn5w> (Y. Mykhailova); <https://tinyurl.com/4wp4dkez> (N. Savina);

<https://tinyurl.com/mdphxz2n> (I. Tymoschuk)

🆔 0000-0002-1539-1548 (Y. Mykhailova); 0000-0001-8339-1219 (N. Savina); 0000-0002-0709-5087 (I. Tymoschuk)

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because of its equivalence to other sectors of the economy in the sense that comes to the fore financial expediency and clear management. It should be mentioned that in addition to the global economic crisis, which affects education, the education itself does not meet modern demands and as a result is in crisis, so with available resources it is impossible to achieve educational goals.

The purpose of the research is to describe the crises in education determined by COVID-19 pandemic as two side process, which, from one side, appears due the impact of economic crises on education and, from the other side, due to the inability of education to satisfy the demands of information society, as well as to predict the consequences of such impacts on the socio-economic sphere of society. One of the most important features of education is its ability to overcome the destructive effects of economic crises and the ability to change according to the needs of information society. That's why from scientific and theoretical points of view the provided research can be a basis for transformation of education, which may be adapted to the need's modern society.

The research is based on the discussion of the (a) negative impact of the pandemic on the education process, (b) the management strategy in the educational institution during the crisis caused by COVID-19 pandemic, and (c) the results of its implementation in the National University of Water and Environmental Engineering.

The aim of the research is to generalize conceptual approaches to the formation of the management strategy of the education institution during the crisis caused by the COVID-19 pandemic.

2. Theoretical background

2.1. Related work

Underlining the unpredictable outbreak of the COVID-19 pandemic, Georgieva [2] highlights that it became a trigger that caused a global economic crisis, the depth and duration of which have not yet been determined. From the other side Halasiuk [3] provides the idea that the determinative characteristic of the current crisis is in its course, which began as a supply crisis, but then continued as a crisis of demand. Noticing the main methods to overcome the effects of economic crises Kuz'minov [13] says that, unfortunately, developing countries focus their efforts only on areas that directly depend on basic economic indicators. At the same time mentioning the impact of economic crises on education equals it with other sectors of the economy Ilieva and Tsigiris [8], adds that the financial feasibility comes to the foreground. In Ukraine, the problems of the development of education have been studied by Herasymenko [4], Horishna et al. [5], Hrishnova [6], Huzar [7], Kremen [12], Sych, Khrykov and Ptakhina [20], Vakaliuk et al. [23]. The impact pandemic restrictions to higher education system was highlighted by Iyer et al. [9], Kondratenko [10], Kovalchuk, Maslich and Movchan [11], Miller [15], Tkachuk et al. [21].

But despite the contribution of scientists, the problems of the impact of economic crises on education and ways to overcome such consequences still remain not solved. In the system of knowledge economy, where knowledge becomes a commodity and education is commercialised, a necessary condition for the further development of education is its ability to overcome the

destructive effects of economic crises and the ability to change according to the needs of information society. That's why from scientific and theoretical points of view the provided research can be a basis for transformation of education, which may be adapted to the need's modern society.

Taking into account that the XXI century is characterised by the transition to a new stage of development of society, this transition from industrial production to the production of services has become a source of cyclical processes in the world economy. The effects of the economic crisis are beginning to affect social processes, and developing countries are already taking several measures to neutralise the negative effects in this area. But these measures are focused only on that social sphere which directly depends on basic economic indicators (employment, income), and practically is not concentrated on the situation that can be in relatively autonomous areas (education, health, culture), as well as in systems of basic and applied science and innovation [13].

However, the current situation, after the longest 11-year market growth in history, has been marked by the explosion of the COVID-19 coronavirus pandemic, which has become a trigger, that caused the global economic crisis. According to the Managing director of the International Monetary Fund (IMF), it is expected to be the worst economic downturn since the Great Depression, but the depth and duration of the crisis is still uncertain [2].

According to forecasts published by the IMF, more than 170 countries will face falling incomes per capita. Considering the rapidity of the crisis, it has already turned into a global financial crisis and is likely to turn into a full-scale (systemic) economic crisis with falling production in the real sector of the economy and other negative effects. Economic growth has stalled, economic systems have shrunk, trade has shrunk, leading to job and income losses. According to the data of the International Labour Organization (ILO), 51 million people will lose their jobs, 81% of the world's jobs will be affected by coronavirus and quarantine, and the World Bank estimates that another 46 million people will be below the poverty line. At the same time, the ILO underlines that the COVID-19 pandemic had caused the "worst crisis" since World War II.

IMF emphasises that the highest risk areas are developing countries and low-income countries, which have fewer resources and therefore remain vulnerable to crises of supply and demand, various, negative changes in financial conditions

According to Ilieva and Tsiligiris [8], economic crises equalise education with other sectors of the economy in the sense that financial expediency and clear management come first place. In addition, education, like other areas of the economy, needs cost optimization and a balanced budget.

The education and science system in developing countries is much less productive and efficient than in developed countries. The low efficiency of domestic education and science systems is confirmed by the small number of enterprises engaged in technological innovation, even in comparison with countries with an average level of development, as well as the number of patents and inventions per 1,000 people employed in science.

In Ukraine, the network of universities is one of the densest: there are 6.7 universities and 8 colleges, technical schools, and colleges per 1 million population. As of the beginning of 2019/2020 academic year the number of universities, institutes, academies increased compared to 2014/2015 academic year by 1.4% (to 281), and, on the contrary, technical schools, colleges and schools decreased by 12.7% (338 institutions) and compared to 1991 – by 51.1% Therefore,

Table 1

The main statistical indicators of the financing of the educational sector.

| | before COVID-19 | | | during COVID-19 | |
|--|-----------------|-------------|-------------|-----------------|-------------|
| | 2017 | 2018 | 2019 | 2020 | 2021 |
| GDP in actual prices, mil., UAH. | 2 983 882,0 | 3 558 706,0 | 3 977 198,0 | 4 222 026,0 | 5 459 574,0 |
| Number of higher educational institutions, units | 661 | 652 | 619 | 515 | 386 |
| Number of students in higher educational institutions, thsnd., person | 1 538,6 | 1 522,2 | 1 439,7 | 1 142,0 | 1 047,0 |
| Consolidated expenditures on higher education, mil., UAH | 38 838,2 | 44 243,6 | 51 358,4 | 53 403,3 | 64 843,5 |
| Number of vocational education institutions, units | 756 | 736 | 723 | 711 | 694 |
| Number of students in vocational education institutions, thsnd., person | 269,4 | 255,0 | 245,8 | 246,9 | 250,3 |
| Consolidated expenditures on vocational education, mil. UAH | 8 278,9 | 10 004,0 | 10 815,7 | 11 515,6 | 14 180,3 |
| Number of general secondary education institutions, units | 16,2 | 15,5 | 15,2 | 14,9 | 14,0 |
| Number of students in general secondary education institutions, thsnd., person | 3 922,0 | 4 042,0 | 4 138,0 | 4 211,0 | 4 230,0 |
| Consolidated expenditures on general secondary education, mil., UAH | 84 346,3 | 101 690,6 | 115 277,0 | 122 444,2 | 149 990,9 |
| Number of preschool education institutions, thsnd., units | 14,9 | 14,9 | 14,8 | 15,3 | 15,0 |
| Number of students in preschool education institutions, thsnd., person | 1 304,0 | 1 278,0 | 1 230,0 | 1 151,0 | 1 111,0 |
| Consolidated expenditures on preschool education, mil., UAH | 28 210,1 | 31 786,3 | 36 044,6 | 37 559,9 | 48 599,6 |

the network of universities is transforming [16]. General data about the number of educational institutions, number of students and consolidated expenditures on education according to the year and educational level is given in the table 1.

The analysis allows us to consider the impact of COVID-19 pandemic as an essential, but for the overcoming this negative impact it's necessary to explore indicators more carefully in such sections: reduction of funding in the education sphere, reducing the number of participants in the educational process, inadequacy of the traditional education model to the demands of the information society, lack of necessary educational forms.

2.2. Reduction of funding in the education sphere

Education as a sphere of economic activity has a productive nature: it is able to bring returns both in the short-term and in the long-term in the form of an increase in income and profit, which determines the specific value of investments in education as highly profitable. Calculations of the economic efficiency of education confirm its significant contribution to economic growth [19].

It is education, creating modern intellectual products, that is a strategic sector of the economy. In Ukraine, the Ministry of Education and Science distributes budget funds in education and controls 81.5% of central funding (22.4% of all public sector expenditures), while the rest of the funds are distributed by the Ministry of Health (9.3%) and by other central government bodies (Ministry of Internal Affairs (3.5%), Ministry of Culture (2.5%)). The decrease in funding of education is evidenced by the systematic violation of the regulatory requirement to provide general allocations for education in the amount of at least 7% of GDP at the expense of state, local budgets and other sources of funding not prohibited by law: in 2017, allocations in the amount of 5.35% of GDP, in 2018 – 5.28%, in 2019 – 5.37% in 2020 – 5.33% and in 2021 just 5.08% [24].

2.3. Reducing the number of participants in the educational process

According to UNESCO data, at the beginning of the 21st century the general situation is critical, because in addition to the reduction in funding for education, the number of people receiving education is decreasing. A large number of young people have only primary education or do not receive it at all, and about 13% of children are not included in the education system.

The UN report “Education in the era of COVID-19 and beyond” notes that even before the pandemic, the world’s population faced significant difficulties in realising the right to education as one of the basic human rights. Even though primary education is implemented in most countries, a huge number of children – more than 250 million – did not attend school and almost 800 million adults were illiterate. However, even for children enrolled in school, acquisition of knowledge is not guaranteed, as an estimated 387 million (56%) primary school-age children lack basic reading skills [22].

According to the data of the State Statistics Service of Ukraine, the number of students in general secondary education institutions in 2020 is 4,138 thsnd. persons, which is almost 50% less than in 1990-1992 and 20% less than in the 2000s, and the number of graduates also decreased by 50% compared to 1990 and 2000. The decrease in the number of general secondary education institutions from 1990 to 2010 was almost non-existent and amounted to only 4%, and by 2020 this percentage had increased to 30% compared to 1990.

2.4. Inadequacy of the traditional education model to the demands of the information society

In the information society, education acts as a catalyst for human capital, improving the quality of the workforce, increasing production productivity and economic growth. Management of the educational process involves achieving high quality education by creating conditions for the formation of well-educated graduates.

At the beginning of the 21st century, there was a need to change the traditional concept of education, the main directions of which should be the development of the ability to communicate, to work in a team, to critical thinking, to adapt to changes, the ability to develop technical and creative abilities.

According to the results of the Global Survey of the American Institute of Public Opinion “Are you satisfied with the quality of the education system in your city or district?”, the number of respondents who were satisfied with the education system in Ukraine was only 38%. For comparison, this figure is 53% in Japan, 57% in Belarus, 59% in Germany, 66% in Poland, 70% in the USA and Great Britain, 71% in Canada, and 71% in France [1].

Since the number of graduates with higher education in Ukraine is very large compared to the economy's needs for such specialists, there is a significant imbalance in the labour market between the demand and supply of the labour force based on professional qualifications. At the same time, the education system does not meet the demands of the labour market for qualified workers.

2.5. Lack of necessary educational forms

In the Report of the International Commission on Education for the XXI century education was focused on the technological development of society, which requires the diversification of education and relevant programs for the training of specialists, the emergence of new types of training and professional knowledge [14].

However, the economic crisis caused a reduction in public funding in the education sector, with a shift in priorities to primary education. The innovative nature of the allocation mechanism of the state budget's expenses between higher education institutions, introduced in 2020, undefined the specific indicators which are used for adjustment of funding. On the other side, the reduction of the government order for training has particularly negative consequences for regional educational institutions [17].

The formation of anti-crisis management mechanisms in the sphere of education should first of all provide for anti-crisis measures aimed at the most problematic components of the educational sphere: funding, number of participants and institutions, quality and forms of education.

2.6. The management strategy in educational institution

Considering the fact that main features of information society include three main components: high technologies, human capital, pragma-psychology; anti-crisis management strategy in such conditions will be focused on the same areas that will be implemented in: virtualization, HR policy and branding (figure 1).

VIRTUALISATION of the educational institution involves the creation of the virtual market, virtual reality and virtual organization with the help of information and communication technologies [18].

The functions performed by virtualisation include:

- Communication: e-mail, video conferencing, collaboration software, social media.
- Data management: data storage, data management, data access.

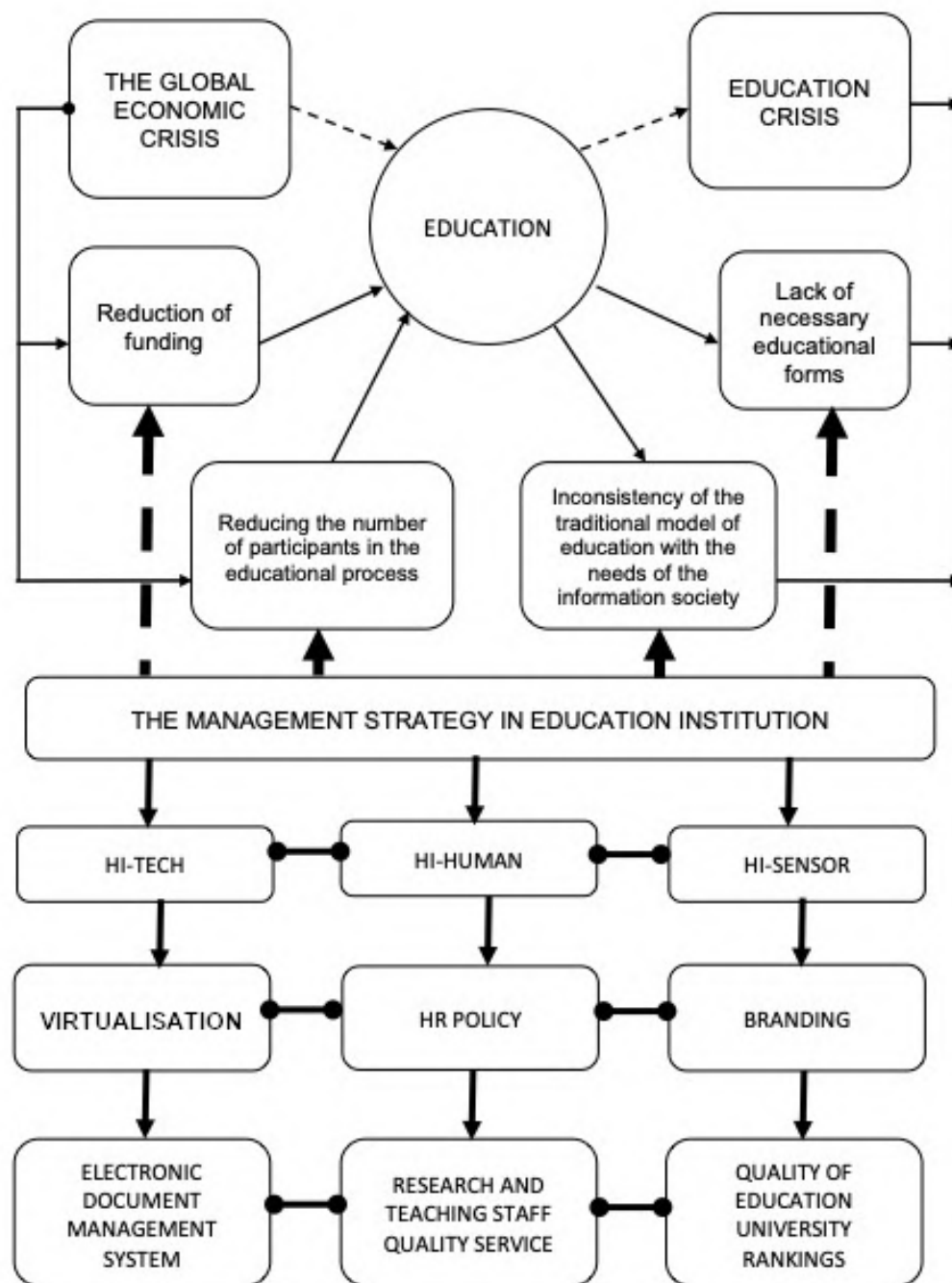


Figure 1: The management strategy in education institution.

- Marketing: content creation, online advertising, e-commerce, marketing research.
- Process improvement: financial savings, reduction of logistics costs.
- Resource planning: combination of functional aspects of the institution.

HR POLICY focuses on controlling budget expenditures, employee satisfaction, training and development, conflict resolution and productivity:

- Solving current problems of employees: salaries, investment of employees, pension plans and training and mediation.
- Attracting new employees: recruiting potential employees and targeting new employees.
- Termination of employment: settlement of payments, restriction of access to institutional resources and confidential materials.
- Inspiring the morale: overall success of the company, reward for good results and creating a positive work environment.

BRANDING is a key element, which implementation helps to stand out from the competition, build brand awareness, create lasting experience with the brand, connect with the audience and turn them into loyal customers.

An effective market strategy uses the company's resources to create content that includes:

- market research,
- defining the profile of the target market,
- determining the uniqueness of the product,
- implementing a marketing strategy,
- setting goals and budget.

For the first time, it was set conceptual approaches to the formation of the management strategy of the educational institution as the participant of educational activities, with the basis on hi-tech, hi-human and hi-sensor, that allows to make systemic management decisions that reduce the negative impact of the crisis caused by the COVID-19 pandemic.

3. Results

This research was provided in 2020-2021 in view of economic and social impact of COVID-19 pandemic, which has become a trigger, that caused the global economic crisis.

According to the official data from the admissions committee of the National University of Water and Environmental Engineering (NUWEE) the number of students in 2021 remains decreasing for 32% (figure 2). This situation may be observed because of demographic crisis, lack of state funding and the COVID-19 pandemic's influence. But overlooking this graphic we should underline, that in spite of reducing number of students the gap between the number of students of full-time education and the number of students of external form of education. It can be explained in view of transformation the form of education process, in other words the development of virtual education institution. For reducing the negative consequences of crisis caused by COVID -19 pandemic, the anti crisis strategy was implemented in the National

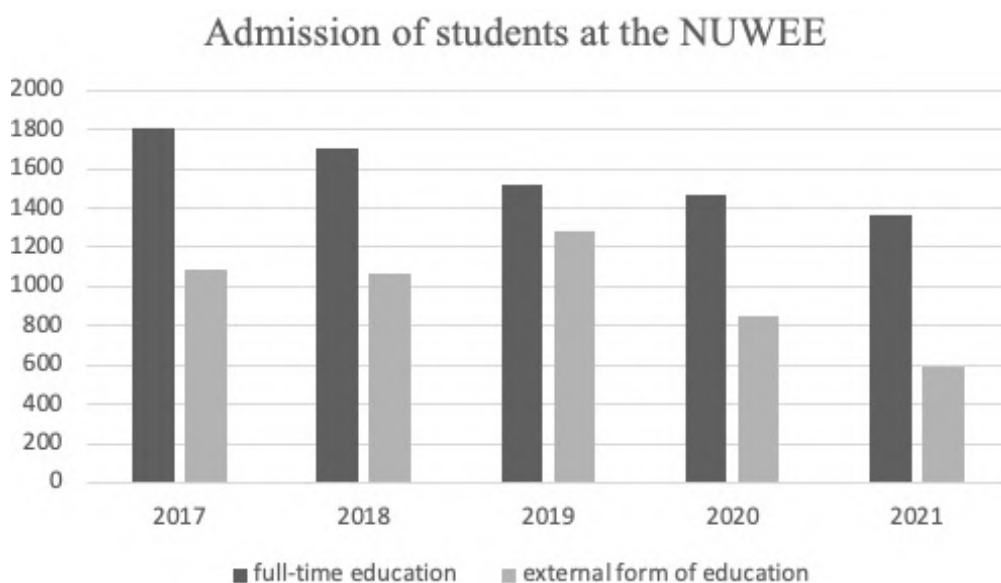


Figure 2: Admission of students at the National University of Water and Environmental Engineering in 2017-2021.

University of Water and Environmental Engineering. This strategy consists of three main points: virtualization, HR policy and branding.

If to speak about virtualisation of the educational processes, it should be mentioned about the development of the NUWEE web-site to the educational portal and the development of NUWEE application (figure 3), where all the participant can find all services provided by university nuwm.edu.ua.

Another point to speak about is the electronic document management system (figure 4), the providing of which was during the pandemic, but till now it's developing: idoc.nuwm.edu.ua.

The HR policy during COVID-19 was only targeted in solving current problems of employees like salaries, support, creation of new virtual working place.

The last but not the less important point is branding, which includes in this stage building brand awareness and creating lasting experience with brand. Together with all SMM channels of NUWEE, which were implemented and developed during 2020 and 2021 years, we started the project "Education without borders" (figure 5).

This educational project was launched for people, that lost their jobs because of COVID-19 pandemic, or decided to improve their skills or just need a support. During four weeks of it 250 people allover Ukraine attend 120 hours of practical classes. The project has four main directions:

1. "NUWEE and children" – interactive creative activities for children;
2. "NUWEE and languages of the world" – practical classes of Ukrainian and foreign languages;
3. "NUWEE and ZNO" – practical classes of preparation for entrance examinations in English;

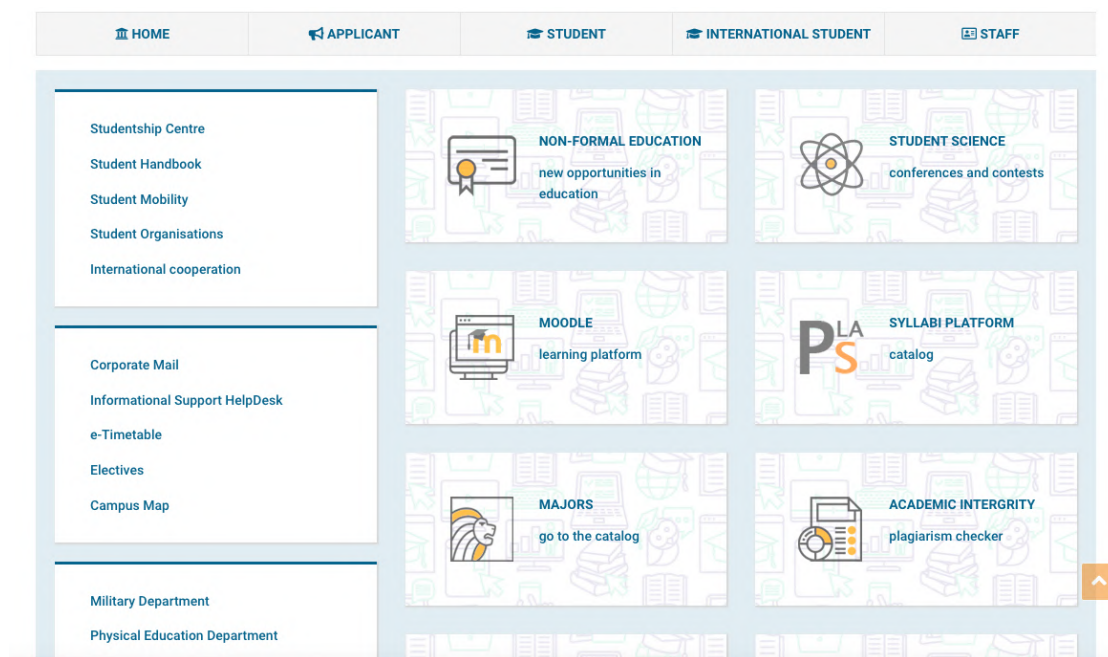


Figure 3: Website of the National University of Water and Environmental Engineering.

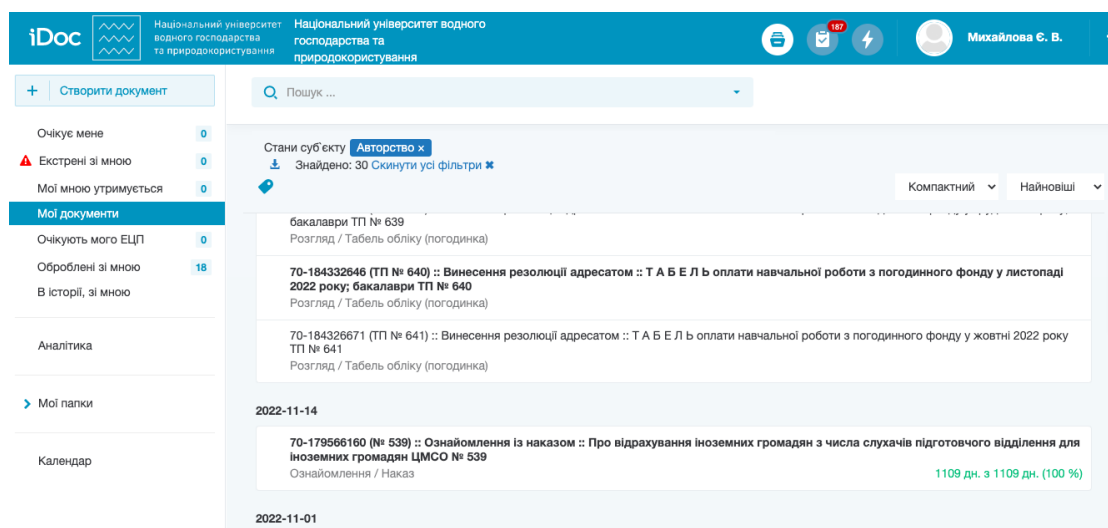


Figure 4: System of electronic document circulation at the National University of Water and Environmental Engineering.

4. “Advice from NUWEE” – consulting services in the education and research, translation services of educational and identification documents.

The results of this strategy implementation are highly covered in the social media. Brand recognition and brand perception is strongly increased (figure 6). At the same time the largest

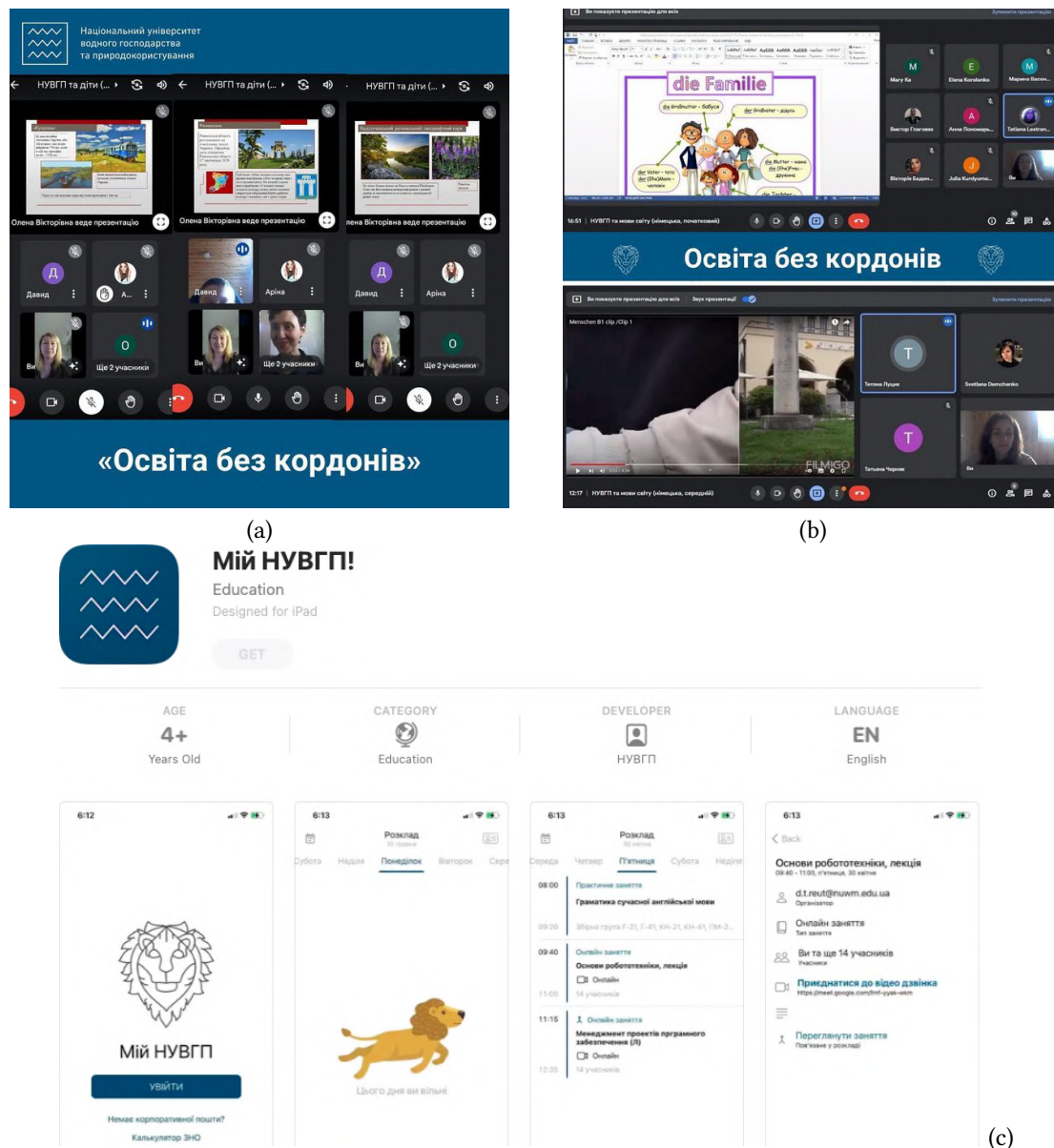


Figure 5: NUWEE's project "Education without borders (a, b) and NUWEE application (c).

increase was noticed in TikTok for videos with over 1 million views, and obviously it's due to the world trends. Moreover in Instagram we can observe increase in "likes" amount up to 200000.

Although the results of this anti crisis strategy can be viewed during the admission campaign in 2022, this strategy is still implementing by the university.

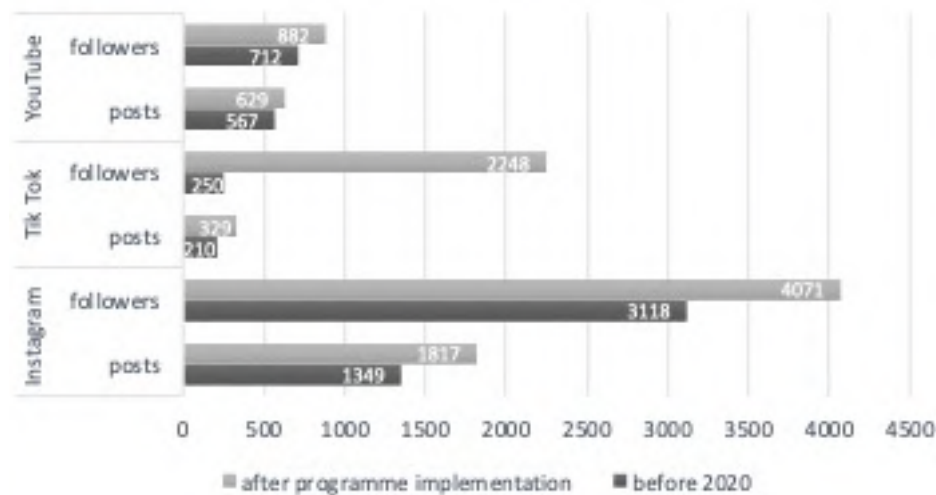


Figure 6: The results of implementation the strategy in social media.

4. Conclusions

So, in the information society, crisis and education are considered as interrelated concepts. The global economic crisis caused by COVID-19 pandemic directly affects all spheres of socio-economic life, and it has a negative effect on education: reducing funding and reducing the number of participants in the educational process. At the same time, the traditional model of education does not meet the demands of the modern information society. That is why there is an internal crisis in the education sector, which is developed through reducing the quality of education and lack of necessary forms of education. The formation of anti-crisis management mechanisms in the education institution should provide for anti-crisis measures aimed at the most problematic components of the educational sphere: funding, number of participants and institutions, quality and forms of education. The management strategy of an educational institution as the participant of educational activities, which should be implement during the crisis caused by the COVID-19 pandemic because of its basis on the principles of the information society: hi-tech, hi-human and hi-sensor, which are implemented in the strategy through virtualization that involves the creation of the virtual market, virtual reality and virtual organization with the help of information and communication technologies, HR policy, that focuses on controlling budget expenditures, employee satisfaction, training and development, conflict resolution and productivity, and branding that helps to stand out from the competition, build brand awareness, create lasting experience with the brand, connect with the audience and turn them into loyal customers, allows to make systemic management decisions that reduce the negative impact of this crisis.

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