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HIGHER EDUCATION DURING AND AFTER THE PANDEMIC: PHILOSOPHY OF DIGITAL CHANGE

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Abstract: The authors discuss the problems associated with the accelerated digitalization of higher education during and after the pandemic. Various approaches proposed by specialists dealing with problems of digitalized higher education are analyzed, and the benefits and risks associated with digital change are identified. The theoretical approach includes some famous theories in the philosophy of education constructed first by John Dewey and developed further by contemporary scholars. The empirical basis contains several studies of students, teachers and experts conducted in Armenia and Belarus. The authors present a comparative analysis of the situation in higher education in both countries during the pandemic. The research results show that the online form of learning poses several difficulties and offers advantages over the traditional form of learning. At the same time, the rejection of traditional forms of learning is also related to the problems and unpredictable consequences of the quality of learning. The authors conclude that currently, the most promising form of learning is hybrid. Its implementation demands a special educational environment to embrace the advantages of online and offline forms of education and account for factors influencing the effectiveness of these forms.

Keywords: higher education, digitalization, e-learning, hybrid learning, information education technologies, pandemic.

Introduction

The article is devoted to the problems of transformation of higher education in Armenia and Belarus during the pandemic and post-pandemic starting from March 2020 in the context of the features of combining online and offline forms of education. Problems of restructuring higher education in the context of global digitalization and restructuring, which K. Schwab described as the "fourth industrial revolution", or "Industry 4.0" (IR 4.0), are relevant, regardless of the force majeure conditions that have arisen in as a result of the pandemic (Schwab, 2016). These prob-

lems are related to the need for higher education to face modern global challenges and to be included in the "rules of the game" as part of IR 4.0. In other words, education is likely to be unable to train specialists with the level of skills required by modern development trends without incorporating Information Education Technologies (IET). Changes are needed in the theoretical and philosophical approaches to education to reflect the new global situation. The entire model of the educational process needs changes, as it is forced to train specialists with a completely different level of reflection, using IET and innovations in everyday life. At the same time, there exists the problem of maintaining a proper quality of education regardless of any fashion trends.

From this point of view, the COVID-19 pandemic turned out to be a trigger for the informatization and digitalization of education (Vincent-Lancrin, 2020). It prompted the world to switch to online learning methods and actively introduce IET into the educational process. We assume that the pandemic can be viewed as a driving force for further digitalization and modernization of the system of higher education to help it become international and competitive (Little & Titarenko, 2017).

In Armenia, starting from March 16, 2020, pandemic quarantine restrictions were introduced, which led to the complete transition of the Armenian higher education system to online learning. This situation lasted until early 2022. The challenges of the pandemic made it possible to assess its current results and think about the future of education (Zaslavskaya, 2021a).

In Belarus there was no lockdown. However, online methods of education have been broadly introduced since spring 2020. From late 2021 online education was incorporated into a new Code of Education that made it legally grounded[1]. Restrictions were over by the end of the 2020/2021 academic year; however, some universities could use online forms later, depending on the situation.

Under such conditions of both global and nationwide societies – accelerated digitalization of education (DE) and other spheres, and the global pandemic of COVID-19, it is necessary to introduce some serious changes in the concept of modern philosophy of education. We have to reassess some principles and statements of this philosophy, taking into account all global changes. Also, we have to research how the innovations are implemented in the field of education and how the actors involved in education evaluate them.

The role of the philosophy of education in the analysis of the new social-cultural situation and the pandemic is steadily increasing. It has to help educators deeply understand the new conditions of functioning and develop principles to serve as the basis of practical activity for educators (Batrakova, Glubokova, Pisareva, & Trjapicina, 2021). The philosophy of education will influence the process of education through several mechanisms and ideas that can be accepted by scholars, practitioners, and administrators. Through its successful application, the philosophy of education can further influence the state's decision-making in the sphere of higher education and thus actively contribute to the formation of a future model of higher education.

We have to stress the importance of innovations in the sphere of higher education in Armenia and Belarus because both countries participate in the process of integration into the Eurasian Economic Union. Each new step in this direction has to be studied and assessed, as we already did in our previous joint research (Titarenko & Zaslavskaya, 2019). The pandemic has emphasized the importance of arranging new research to take into account new global processes and national changes. For example, the new ideas and principles of philosophy of education have been implemented in the new Concept of Development of the Education System of the Republic of Belarus until 2030 in 2021 and in 2022.

We start with some general problems of digitalization of education (DE) that seem to be applicable both to Armenia and Belarus, although we mostly mention here research in Armenia.

Theoretical and Historical Background

Issues of DE have long become popular in the fields of social and pedagogical sciences. The focus of the publication was made on the transition of higher education to online learning (e-learning system with the help of IT) when many analogue learning formats are simply transferred

[1] Here we consider only full-time education, and do not consider distance learning.

to the digital environment. After a year, it became clear that the DE required a completely different educational design. Katherine Cross from the National Center for the Development of Teaching and Learning (Ireland) analyzed the implications for teaching in the digital age and noted: "the contradiction between the new pedagogy of excess knowledge and the institutional environment and policy of the organization, which are still based on the pedagogy of knowledge deficit" (Dugova, Veledinskaya, & Kuravleva, 2021, p. 347).

Numerous articles discussed the advantages of using digital technologies in education, such as increasing the transparency of education, wider access of students to educational information resources, an individual opportunity to create educational projects, increasing the optimization of the interaction between teachers, students and all participants in the educational process, creating mobile education management structures, among others (see, e.g. Minina, 2020; Marginson, Karpinskaya, Kuz'mina, Larionova, & Bocharov, 2020; Echenique, Molias, & Bullen, 2015; Hargreaves, 2017; Higgins, Xiao, & Katsipataki, 2012; Li & Lalani, 2020; Gevorgyan, Berberyan, & Berberyan, 2022). Another important topic of the analysis includes risks and problems associated with the introduction of IT in education, such as the protection of data authenticity, confidentiality, and similar potential and real risks of information security (see, e.g., Higgins, Xiao, & Katsipataki, 2012; Rakitov, 2018). The risks associated with the new digital analogue are also significant: "the transition in education to a different technological level of working with information contains the risks of crowding out the fundamental pedagogical values and meanings of education, the surface of the knowledge offered to the masses, establishing total control over the educational behaviour of a person" (Kolesnikova, 2019, p. 78).

Let us focus on significant obstacles in the implementation of distance learning - the subjective reasons for the resistance to the development of digital technologies. R. Hirschheim and M. Newman (1998) identify nine such reasons:

1) inertia and conservatism, attachment to past experience and formed habits;
2) absence of clear benefits for participants in the changes or inability to assess these benefits;
3) uncertainty, inability to predict the future, uncertainty about the future;
4) low involvement in change, non-participation in decision-making, perception in a position of subordination;
5) risk of uncontrolled redistribution of resources, loss of the current position;
6) inconsistency of the proposed changes with the existing organizational structure, cultural patterns of interaction;
7) lack of support from the administration and senior management personnel, replacement of cooperation with control and accounting;
8) low level of computer literacy;
9) personal, psychological characteristics of participants in the change (pp. 398-408).

Some researchers argue: "Where anime, games, social networks, open sites and "applications" become sources of knowledge, in addition to targeted educational materials, a superficial contact of a person with information is fraught with simplification and primitivization" (Kolesnikova, 2019, p. 74). This is a new threat to the educational process (Radaev, 2022). Current students are called "digital natives"; they learn primarily through the internet and do not seem to respect printed books. Even their respect for teachers has decreased due to the generation gap (Grishchenko & Titarenko, 2019). That is why they are unprepared for the perception of large texts. Therefore, they like video materials and presentations much more than traditional lectures. At the same time, the teacher's function does not remain unchanged: "When the learning process is partially or completely transferred to the virtual space, the teacher's function changes, which becomes not the main carrier of educational information, but an intermediary and facilitator of students' communication with the virtual world" (Peltekova & Stefanova, 2016).

It becomes clear that the direct transfer of analogue education to the digital environment simply does not work for several reasons:

a) It requires a significant amount of independent work (which undergraduate students are simply not ready for) when social networks, games, anime, and open sites become sources of knowledge and "applications";
b) They are transformed into forms of organizing a lesson, and if the lessons themselves naturally set the regulation (they structure the content, time and types of educational activi-

ties), then independent educational work does not have these properties;

c) Because of a lack of an appropriate level of motivation (cognitive interest, desire for personal growth, knowledge of the need to acquire relevant competencies, awareness of responsibility and freedom to build a personalized learning path, undergraduate students (in general) are not being ready for independent work in a digital environment. Moreover, they know how to implement it in school education); the main forms of organization of educational processes themselves already set the regulation.

It seems that at the undergraduate level when the scope of spontaneous interaction with information is largely limited, it is necessary to provide the theoretical base that will become the basis of "intellectual changes" in the future. Lisya Ulykhan from the University of Toronto, considering the problem of the gap between the "old and new", points out that "the formers are still concerned about giving students a solid theoretical base, which should serve as their further self-realization, while the moderners have reoriented towards narrow professional training, allowing you to get to work immediately" (see Rakityanskaya, 2013). She advocates increasing the volume of theoretical knowledge, believing that it forms full-fledged ideas about the world and humans in students, paving the way for continuing education (Rakityanskaya, 2013).

Special problems associated with the digitalization of higher education are observed in the first year of undergraduate studies. Renowned higher education researcher Martin Karnoy notes that "numerous studies strongly suggest that high school graduates come to university unprepared for university studies and for the inevitable workloads and stress, either academically or psychologically" (Kuzminov & Karnoy, 2015, p. 40). Students are simply not ready for this; they have completely different expectations and other problems. It is perhaps one of the key problems of socialization. However, according to some authors, this is not a defining characteristic in the process of obtaining knowledge. "This interaction, although important, is not decisive for the perception of comprehension and consolidation of knowledge, since all these stages of the cognitive process are implemented in the course of independent individual work of students with DER (Digital Educational Resources)" (Solovov & Men'shikova, 2021, p. 63). All this indicates that the active "promotion" of the paradigm of "personalized education" is fraught with many dangers. One cannot agree with this since this interaction, first of all, with the teacher is decisive in a ritual of a special type – interactivity. "Intellectual interactive ritual differs from other rituals primarily in the structure of attention. The key event here is a lecture or debate," N. Gubanov (2020) notes. At the same time, the most important event of interactive intellectual ritual is "in the development of a worldview, in a claim to understanding the content of statements as an independent goal" (Gubanov, 2020, p. 76).

Let us turn to some features in the definition of terms related to information technology in higher education. The "*informatization* of the education sector" as a whole is understood as "the process of providing the education sector with methodology and practice for the development and optimal use of modern information technologies focused on the implementation of the psychological and pedagogical goals of training and education" (Nikulina & Starichenko, 2020, p. 109). The term "*digitalization* of education" is understood more narrowly than the term "informatization of education" and is defined as the introduction of digital technologies, incl. software in the educational process. The DE involves the implementation of a number of processes, including the following (Zaslavskaya, 2021b):

- *creation of online platforms* for the digital organization of courses taught,
- *creation of online communication technologies*, including
- teaching, including *lecture communication,*
- *control and evaluation of knowledge,*
- *communication of all actors of the educational process: teachers, students, administration, etc.,*
- *business communication,*
- *interpersonal communication,*
- *transformation of teaching technologies in the context of online learning,*
- *creation of technologies for monitoring the quality of the educational process,*
- *preparation of online courses,*
- reorganization and development of *new education standards* at the level of public admin

istration (p. 31).

Research Methods and Methodology

The article is based on the general principles of the philosophy of education developed by American philosopher and educator John Dewey. Among his great pedagogical heritage, it is especially important to mention the idea of creative education, where both teachers and students are active persons (Dewey, 2007). Also, Dewey (1963) was a promoter of interactive education, where the teacher regularly communicates with the students face-to-face. In his books, Dewey explained why such principles of education as student-oriented learning, creation of the optimal educational environment for self-realization of youth, and communication are extremely important. It seems that regardless of new global features, these principles are still relevant for education. As we included digitalization as an important part of education in our approach, we call it the "philosophy of digital change" (or philosophy of digitalization). This is an approach that we apply only to education, and this limitation is necessary to be taken into account.

Student-centred philosophy of education stresses humanism. Currently, it is implemented in many American schools and universities because this philosophy is about fostering each student to his or her fullest potential. The main goal of education within this framework is the self-realization of each student, while the role of the teacher is to help the student to develop his/her potential during the educational process. Currently, such an approach is broadly used in pedagogy, psychology and philosophy of education. At present, students often view their self-realization through digital technologies, and it refers not only to education but to other spheres of activities as well. Distance education can stimulate the students in this direction, while the teachers can balance digitalization with human goals of education and the development of other aspects of personality. That is why teachers play an important role in this type of education and help to make it human (Florkowski, Wiza, & Banaszak, 2022).

On the basis of this theoretical approach, a longitudinal study was conducted in Armenia in 2020-2021 (4 stages of studies were implemented). Methods used for collecting the data included the following: an online survey was conducted by "river-sample" technology; 629 students participated in the study; 42 teachers selected by the targeted sample participated in in-depth interviews, and 12 experts selected by the "snowball" method were interviewed within the research.

The empirical tasks of the research were as follows: to identify the features of the accelerated digitalization of education, to analyze the possibilities and limitations of online and offline forms of education, and to discuss the possibilities of their combination.

As for Belarus, empirical research was based on online surveys. Its aim was to research and assess the transition to online forms of education (OFE). The first national survey was conducted in the spring of 2021 and included 1733 students who used OFE from different types of universities in Belarus. A second national online survey was conducted in spring 2022 and included 2666 students. Also, local surveys of university teachers were held in 2021 at Belarusian State University (456 persons). Overall, they provided information on the pedagogical assessment of the learning situation in the pandemic. The analysis of all the above-mentioned information allowed us to analyze both the pandemic period and once the massive distance education was over (since the 2021/2022 academic year).

Results

Our analysis showed that the accelerated digitalization of higher education in Armenia and Belarus faced five main types of problems: technical, economic, pedagogical, physical and psychological. At the initial stage, digitalization was associated almost exclusively with the transition from offline forms of education to online forms (e-learning), which cannot be assessed as the complete digitalization of higher education in accordance with the above components. On the contrary, the traditional form of education was only projected onto a new online form of education. Therefore, the first responses from both teachers and students had a very negative connotation regarding online forms of education. The objective reasons include first of all, the technical component, namely: insufficient readiness of

technical means for conducting online training, lack of proper material, technical and methodological software, including poor Internet connection, lack of sufficient technical capacities, lack of prepared platforms for the implementation of online learning, lack of skills in using technical means on the part of the participants in the learning process. It should be especially emphasized for that period that, in the eyes of online learning participants, the lack of digital platforms for organizing live communication both between students and between a teacher and students outside the regulated time allotted for lectures or seminars should be emphasized. It was technical problems that then occupied a leading position in assessing the problems associated with online forms of education.

Technical problems were directly related to *economic* ones, namely the lack of funds for the organization of online learning, as well as for the acquisition and use of digital information technologies.

Of particular importance are a number of pedagogical problems associated with the insufficient readiness of the educational process for online learning, including the unpreparedness of digital educational materials, programs, standards, regulations, and procedures for the implementation of online learning, as well as the lack of proper online teaching and listening skills in the virtual space. Also, one of the lowest scores in all studies of students was the students' estimation of the fairness of online assessment of students' knowledge.

The physical and psychological problems noted by research participants in the process of organizing an online form of education were also quite important. Respondents attributed physical problems primarily to lack of physical activity, a permanent sedentary lifestyle, and sitting for several hours in front of a broadcasting device during online learning.

Psychological problems were associated, first of all, with the rejection on the part of students and the majority of teachers of forced self-isolation, the rejection of a normal lifestyle, and forms of communication. Psychological problems also include the insufficient ability of participants in the educational process to organize interaction and communication in the virtual space and insufficient motivation for active participation in the learning process.

The epidemiological factor contributed to the speedy adaptation of universities to the transition into a digital platform. By mid-2020, many problems had been resolved. From September 2020 in higher education in Armenia, a hybrid form of education has been implemented, which combines online and offline forms of education. By the beginning of 2021, all leading universities in the country have created online platforms to ensure the organization of online learning, mainly based on the Moodle and Google Classroom platforms. Platforms for online communications during remote lectures and meetings, such as Zoom, BBB, Google Meet, and Microsoft Time, were mastered and began to be used practically everywhere (Zaslavskaya, 2021a, p. 119). Moreover, in the learning process, information technologies such as Padlet, Ezvid and Tricider are beginning to be used, with the help of which competitive technologies are introduced into the online learning process, technologies that improve communication skills, self-presentation skills, and cognitive analysis skills. If in the first half of 2020, only 35.7% of students were satisfied with the online form of education, by mid-2021, this number increased to 48.8%. It should be noted that assessments of satisfaction with the OFE significantly correlate with the degree of education:; undergraduate students in all studies are significantly more satisfied with the online form of education compared to bachelors. Reasons for positive assessments of the online form of education begin to appear with an increase in motivation for its implementation. According to respondents, online learning has, firstly, certain economic benefits, including a reduction in transport costs (both time and financial savings), a reduction in the cost of equipment wear and tear and maintenance of classroom support for universities. Respondents also indicated organizational advantages when the time and place for online meetings could be implemented based on the convenience of the participants in the process. And finally, in some cases, an increase in motivation and interest in participating in online classes was indicated. Meanwhile, hybrid forms of education also made it possible to solve the problems associated with the lack of live communication between teachers and students, which is the most important factor in organizing any form of education in higher education. From September 2020 until May 2021, hybrid forms of

education have become more widespread as the main form of education in the country's universities.

Among the hybrid models of education in Armenian universities, the most widespread is the so-called Enriched Virtual model, when a flexible combination of online and face-to-face learning is implemented for each course. Lab Rotation model (rotation of meetings) with a consistent combination of online and full-time learning for the entire group within the same subject also had its implementation in the country's universities. The Flipped Classroom model also turned out to be in demand when theoretical training is carried out during online learning and practical reinforcement of the material is implemented in full-time classes. Other hybrid learning models, such as Station rotation (when a group is divided into subgroups and work is carried out with each subgroup in sequential face-to-face and online formats), Individual Rotation (associated with working with each student separately in online and face-to-face formats), Flex (a flexible model that provides for self-study of students with an individual discussion of the main issues online with a teacher), as well as the A La Carte, Menu models (a map, or menu, when online courses are implemented additionally to full-time education with a teacher) did not receive the significant distribution in the universities of Armenia; however they have their own benefits.

Among the problems of the considered stage of the hybrid model of education in the universities of the country, the following can be distinguished:

- Insufficient development of new training standards that provide an effective balance between online and full-time forms of education;
- Insufficient development of principles for monitoring the quality of blended education;
- The need to create technical platforms to ensure closer personal communication and exchange of views during online learning;
- Insufficient attention to the psychological mechanisms of adaptation of students and teachers in relation to the constant variability of the forms of education within the framework of the hybrid model (the effect of fatigue from the constant change in educational settings).

Several problems have not yet been resolved. However, in September 2021, a special form of hybrid education began to be implemented in Armenian universities. The priority was given to full-time forms of education with the obligatory formal maintenance of activity on virtual educational sites. Actually, the hybrid model had a rather formal character, and the combination of the positive aspects of online and full-time forms of education has not been finally realized. Such a model of hybrid learning can be conditionally called "*formal-procedural*" when an additional burden arises for the teachers, which consists in maintaining online educational platforms, the need to duplicate tasks and programs on virtual information platforms, and simulate reporting activities, provided that students do not have special motivation to be active on these online platforms.

In Belarus, students' assessment of the quality of OFE was generally positive, and adaptation strategies were successful. The results demonstrate an increase in the level of adaptation to the challenges of the pandemic. They revealed the educational potential of OFE and confirmed the possibility of successful digitalization of higher education systems. This approach will help maintain competitiveness and the quality of higher education.

Research in Belarus showed that most problems of teachers were technological – low speed of the Internet, unstable internet connection and difficulties with the Moodle platform (it was specially created for Belarusian universities). Teachers also mentioned the increase in workload, material spending for IET, extra hours of work and psychological stress connected with a combination of the pandemic and digitalization.

In a year, 70% of teachers agreed to use OFE for consultations and control students' work in the future. However, only 48% agreed to have online lectures and 22% - seminars. As for students, 80% agreed to have online lectures for the future, 50% seminars and 40% - labs. Three major advantages of OFE for students are the possibility to combine work and study (77%), the high possibility for all students to study from home (74%), and the option to take courses abroad while staying at home (61%). Students' assessment of both traditional and online learning was not in favour of any of these forms; they agreed to combine them in the future.

At the same time, our research found out that OFE created some humanitarian threats to education: students highly evaluated IET and its influence on all the spheres of life – work, education, self-realization, and leisure time. They feel like IET increases their freedom and independence, while they do not understand the possible risks for their health posed by the Internet. Several teachers mentioned that students could not think critically because they tended to use ready-made information from the Internet. These humanitarian threats are potentially dangerous for young people without personal life experience, and only face-to-face communication in a traditional class can improve this situation. Hybrid education cannot prioritize online forms: they have to be in balance with traditional forms, and the results of the hybrid form have to be regularly and carefully checked (Titarenko, 2022a).

Conclusion

Thus, the obtained results of studies show that the hybrid model has undeniable advantages, although its implementation still faces problems. Moreover, the study found a number of limitations that should be taken into account when implementing hybrid learning. The major limitation is related to the fact that the processes of assessing students' knowledge should be implemented in an offline format, in any case. Another limitation refers to the level of education. Our results show that the hybrid form of the educational process is only possible for senior courses when students already have a certain level of independent educational activity and interaction with digital educational resources. We assume that senior students already have sufficient motivation and the ability to self-learn when necessary.

The results also prove that a hybrid model of education increases the competitiveness of the entire system of higher education, contributing to the removal of territorial and temporal restrictions. It has a number of economic, organizational, and educational advantages and allows training specialists who meet modern labour market requirements.

However, insufficient organization and poor development of strategies for the implementation of hybrid education can lead to a number of problems in this area, and the implementation of one of the most unproductive models, when the real possibilities for an effective combination of digital and face-to-face teaching technologies, which are very promising today, are not used; instead, the learning process becomes even more bureaucratic, teachers and students lose more motivation to organize a productive learning process. However, in all likelihood, the future lies with the hybrid learning model (Cronje, 2021), and it is hybrid models that require closer study in terms of the consequences of their application and the development of technologies for their effective organization.

Thus, Belarusian, as well as Armenian educational practices also stressed the advantages of hybrid education (Titarenko, 2022b). During the 2021/2022 academic year, all the universities in Belarus and in Armenia could practice a combination of traditional and online classes depending on the rectors' decisions. Still, there is a need to develop a deeply philosophical approach to its implementation. For example, it is necessary to discuss the proportion of each form in order to find the best combination. It is further necessary to develop the common principles of using hybrid education and advertise it for foreign students to increase the opportunities for foreigners to study in this regime. In both countries, the Ministries of Education only inserted the online form in the Code of Education in 2021, while the other important issues were left for the universities to decide. Perhaps, this flexibility enables the administrators and teachers to make experimental classes for the deep learning of the hybrid forms (they can be numerous).

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