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Transformation of the higher education system in the context of digital change: A research review on trends in the development of a post-digital university

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Abstract

Introduction. *This article presents an analysis of a number of academic researches (in the Russian Federation, the Republic of Kazakhstan and the world) on the future prospects of the higher education system of post-digital university. The article aim is to determine the philosophical aspects of the ongoing changes based on a review of current research on the problem.*

Materials and Methods. *The main methods of the proposed research are the philosophical analysis of academic researches in the field of education, as well as a review of the philosophical literature of 2020-2023 on the trends of the post-digital university.*

Results. *The authors note that currently it put in the first place not the productivity of education, but its social characteristics.*

In a post-digital university, a radical paradigm shift is needed, the rejection of the standardized, algorithmic structure of the university, its transition to a socially significant, critical, responsible device.

The authors show that new technologies, as well as digitalization in education, should not be a goal, but a means. Only then can progress in education and significant social transformations be possible.

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Conclusions. *In conclusion, the authors note that the digitalization of the educational process itself, described in the leading documents on education, will not lead to any results, unless it is accompanied by serious transformations in the content of education.*

Keywords

Modern society; Higher education system; Digitalization of the educational process; Post-digital university; Philosophy of education; The future of education.

Introduction

The COVID-19 pandemic has led to the accelerated digitalization of the entire education sector. *More essential are the questions about how deeply digital technologies affect people and society today, because the digital revolution in education, albeit an emergency one, does not just mean transferring the educational process online* (M. S. Ashilova, A. S. Begalinov, K. K. Begalinova et al., 2022 [1], 2023 [2]).

It means a completely different state and conditions of education in a post pandemic world (P. Bachmann, D. Frutos-Bencze, 2022 [3]; (M. Kuntze, L. Branum-Martin, J. Scott, 2023 [4]; L. I. González-Pérez, M. S. Ramírez-Montoya, 2022 [5]).

The focus of the researchers' attention is academic communication, which is associated:

– with the active computerization and virtualization of the humanities (K. S. Rawat, S. K. Sood, 2021 [6]; H. Luo, G. Li, Q. Feng, Y. Yang, M. Zuo, 2021 [7]);

– with the active mathematization of the humanities (L. Zizka, D. McGunagle, P. J. Clark, 2021 [8]; S. Belbase et al., 2022 [9] ; A. Z. Zhafyarov, 2023 [10]);

– increasing the role of computer modeling in academic research (S. Caskurlu, J. C. Richardson, Y. Maeda, K. Kozan, 2021 [11] E. Genc-Tetik, 2022 [12] E. Y. Tyumentseva et al., 2023 [13]);

– increasing the intelligence of automated systems (B. Weber, T. Fischer, R. Riedl, 2021 [14]; I. S. Ivanchenko, 2023 [15]; A. Bhise et al., 2023 [16]);

– inclusion of academic researchers in the world information computer network of databases (H. Y. Zheng, E. Mayberry, L. Stanley, 2021 [17]) and knowledge (A. Z. Telyubaeva, 2023 [18]; Hu Yung-Hsiang et al., 2023 [19]).

– developing system thinking skills in education students (A. A. Druzhinina, N. V. Garashkina, 2023 [20]; R. A. Ekselsa et al., 2023 [21]; M. T. Rodriguez Sandoval, et al., 2022 [22]; H. Shaked, C. Schechter, 2020 [23]; Y. Shi, et al., 2023 [24]; J. Colomer et al., 2020 [25]);

– need to enhance the digital culture of the individual (N. S. Garkusha, A. S. Alekseeva, L. M. Asmolova, 2023 [26]; L. Tang et al., 2022 [27]; I. Runge et al., 2023 [28]; Y. Su, 2023 [29]; E. Skantz-Aberg et al., 2022 [30]).

One of the important remarks voiced in the scientific literature regarding the features of digitalization is the idea that "*the phenomenon of digitalization is about changes in culture, in interaction models, and to a lesser extent about technology*" (Marei, 2020[1]). Digitalization inevitably entails the transformation of the whole society, inevitably affects not only the behavior, but also the essence of a person.

In this regard, the issues of new foundations for the transformation of education are being investigated (A. P. J. Perin, D. E. Silva, N. M. C. Valentim, 2022 [31]), *possibilities for modeling educational ecosystems* (M. N. Kicherova, I. S. Trifonova, 2023 [32];

[1] Marei A. Digitalization as a paradigm change. Boston Consulting Group. (In Russ.) URL: https://www.bcg.com/ru-ru/about/bcg-review/digitalization

M. Holgersson et al., 2022 [33]; M. Palmié et al., 2022 [34]; Y. Li et al., 2022 [35]).

Currently, the problems and contradictions of teaching in higher education in the framework of Open Educational Practice are being investigated (H. Kaatrakoski, A. Littlejohn, N. Hood, 2017 [36]; Y. V. Pushkarev et al., 2016 [37]; S. Muehlemann et al., 2022 [38]; J. Richard et al., 2022 [39]); the problems of global cooperation in the virtual world (V. Hill, K. B. Knutzen, 2017 [40]; I. Santana-Domínguez et al., 2022 [41]; F. López et al., 2022 [42]).

In recent years special attention is paid to the problems of the formation and functioning of virtual universities that have appeared in different countries (J. M. Harley, E. G. Poitras, A. Jarrell, M. C. Duffy, S. P. Lajoie, 2016 [43]; L. Markauskaite, L. Carvalho, T. Fawns, 2023 [44]).

It is no coincidence that *the issues of digitalization of education are currently being actively discussed in the philosophical literature* (C. Willatt, L. M. Flores, 2022 [45]; N. A. Emikh, M. N. Fomina, 2023 [46]; V. V. Barkova, et al., 2023 [47]) *not only the opportunities, but also the threats of the transition of education to the digital space are being identified*.

This article is devoted to the problem of whether these aspects of digitalization of education are considered in the research papers [1; 2], as well in this article as opinions of leading philosophers of education on the prospects of future education and the "post-digital university" are voiced.

The problem of studying the prospects of education from the point of view of its post-digital state (that is, the state when digitalization, having reached its maximum values, will begin to transform and transform society) it is currently extremely relevant.

The article aim is to determine the philosophical aspects of the ongoing changes based on a review of current research on the problem.

Methods

The main method of research in the article is the analysis of research articles, which made it possible to extract the necessary information and use it to study the problem.

The selected period of time was from 2020 to 2023, that is, *in such a way that the selected research articles could reflect the state of higher education* since the pandemic *and deduce the future prospects for the development of education* after its completion.

The main categories of analysis were also highlighted: the COVID-19 pandemic and higher education, distance education and digitalization, the state and the education system. Within these categories, units of analysis were identified that demonstrate the interdependence between keywords. Conclusions were formulated in the article based on the results of the analysis, reflecting the state of higher education through the prism of research articles, as well as the future vectors of the development of the education system within these articles were identified.

Results

Modern philosophers of education (L. V. Baeva, 2004 [48]; J. Šmajs, 2015 [49]; E. A. Pushkareva, 2014 [50], 2019 [51]) actualize the issues of axiological transformation of processes in education under the influence of information technology.

Vyacheslav I. Kudashov, Sergey I. Chernykh, Mikhail P. Yatsenko, Dmitriy V. Rachinsky [52] actualize the issues that: the explosive introduction of digital technologies leads to the devaluation of the existing system of value relations, which results in the loss of semantic understanding not only of the past, but also of the present (V. I. Kudashov, S. I. Chernykh,

M. P. Yatsenko, D. V. Rachinsky, 2017 [52]). The authors believe that "informatization allows students to inspire not only false, but also quite dangerous ideas," and the forcible imposition of a different value system under the influence of digitalization inevitably leads to the loss of socio-cultural identity (V. I. Kudashov, S. I. Chernykh, M. P. Yatsenko, D. V. Rachinsky, 2017 [52, p. 972]).

COVID-19 has fundamentally changed the architectonics of the global educational process.

Modern philosophers of education (M. Thomas, Z. Yager, H. W. Quinton, 2023 [53]; H. Alhawsawi, S. Alhawsawi, O. Sadeck, 2023 [54]; X. O'Dea, J. Stern, 2022 [55]) agree with the above reports [1] – the Covid-19 pandemic has significantly changed the world (T. Fütterer, E. Hoch, A. Lachner, K. Scheiter, K. Stürmer, 2023 [56]).

As a result, researchers suggest that education is losing its functions both as a stabilizer of interactions and as a foundation for sustainable development of society (M. Pavlíkova et al., 2021 [57], F. Petrovic et al., 2021 [58], H. Tkacová et. al., 2021 [59]).

It is noteworthy that world scientists attribute the concept of "viral modernity" to the already well-known, thanks to Jacques Derrida, the term "pharmakon" (J. Derrida, 1981[2]). Its peculiarity is that it offers treatment, but prescribes toxic drugs. Exactly the same term, scientists believe, is the term "post-digital state", which includes the merging of offline/online phenomena (P. Jandrić et al., 2018 [60]).

Before the pandemic, the discourse of technologies that could "fix" education with the help of the latest Silicon Valley *innovations* at a "smart university" prevailed (B. Williamson, 2018 [61]). *Since March 2020, the impact of technology and its prospects have increased, but technology has not become a panacea for education*, but rather a palliative remedy (N. Selwyn et al., 2020[3]). The symptoms were treated, not the structural cause. *Humanity has not become more educated with the use of the latest technologies*.

Digitalization has increased significantly, but the quality of education has also deteriorated significantly (according to the analysis of papers). Which suggests that a formal connection to the Internet and provision of online communication – the problem can not be solved. It goes much deeper, and affects the foundations of human existence and society, and not just access to resources.

The coronavirus, philosophers believe, was a natural and necessary phenomenon for the field of education. It was the result of a production system devoid of ethics, morality and a sense of the common good. The coronavirus crisis has also spawned a series of ideological viruses. And there are several ways to develop here. Among the positive things, S. Zizek (2020[4]) believes, is that these viruses can open windows for alternative ways of thinking, renewing society towards solidarity and global cooperation. But for this it is necessary to make a huge effort - to recognize the viral modernity in which we are immersed (P. Jandrić et al., 2021 [62]).

Jamil Salmi notes that "the current crisis has provided an excellent opportunity to introduce in-

[2] Derrida J. *Dissemination* (B. Johnson, Trans.). University of Chicago, 1981.

[3] Selwyn N., Macgilchrist F., Williamson B. Digital education after COVID-19. *Techlash*, 2020. 1. Retrieved 25 June 2020. URL: http://der.monash.edu.au/lnm/wp-content/uploads/2020/06/TECHLASH-01-COVID-education.pdf

[4] Žižek S. *Pandemic!: COVID-19 shakes the world*. Polity. Bookmobile, USA, and CPI, UK. 2020. ISBN 978-1-68219-301-3

novations that make it possible to adopt more active, interactive and experimental teaching methods" (J. Salmi, 2020[5]).

After the digital revolution in education, which became possible thanks to the pandemic, the question inevitably arises – what next? How will the sphere of higher education develop when it completely goes online and adapts to it, because besides, judging by the documents studied above, almost all countries of the world will continue active digitalization in the field of education? What will a post-digital university look like?

The prefix "post" signals a new normality. "Post-digital" means not so much the linear progress of technology (for example, from SD to HD or 4K), but "a mixture of subtle cultural shifts and ongoing mutations caused by digitalization and global digital infrastructure" (F. Cramer, 2015 [63]).

We are now approaching the changes, which is characterized by the fusion of technologies and the mixing of digital and biological spheres. *And only now, when digitalization has reached incredible proportions, there is an opportunity to assess how much it affects culture and education, what are the prospects for post-digital education. In this aspect, scientists tend to believe that in the process of large-scale digitalization, academic traditions and previous experience are ignored, and the continued existence of universities is questioned.* "Even more strange is that it is claimed that the entire institute of the university has become obsolete thanks to the Internet and its digital offerings in the form of massive open online courses and others" (N. Harden, 2012 [64]).

With all the content available online, there is no longer a need for curated and cultivated production and dissemination of knowledge. This also applies to certificates that do not need to be issued through a university, but using blockchain technology (D. Kariuki, 2018[6]).

Universities have long been perceived as single entities or monoliths that combine the main functions of teaching and learning under one roof. However, with the development of technology, the idea of a single University has become less important. Instead, it offers a set of networks and communities that act on their own. This is facilitated by network technologies and Internet platforms that offer a digital space for exchanging ideas and working together on projects that generate a huge amount of resources. There are so-called "citizen scientists" who do not have academic degrees, but conduct scientific research in the free flow of information in digital networks. *A number of scientists believe that digitalization has called into question the monopoly of universities, in a digital society they are no longer an outstanding place for the creation and dissemination of knowledge in the form of research and training.* However, such claims are often made from the outside, neglecting the identity of academic culture (M. Deimann, 2019 [65]).

Another claim that digitalization makes to the sphere of modern education is a claim to standardness. Education in its traditional sense is considered as a "beautiful risk" (G. Biesta, 2013[7]) compared to an algorithmically controlled task. Based on a neoliberal agenda aimed at continuously improving the effectiveness of education,

[5] Salmi J. Learning from the Past, Coping with the Present, Readying for the Future: Impact of COVID-19 on higher education from an equity perspective. *Lumina Foundation*, 2020. URL: https://www.luminafoundation.org/?s=Salmi

[6] Kariuki D. India's first blockchain project: Digital certification of education degrees. Abgerufen 19. Juni 2018. URL: https://coinpedia.org/news/digitalcertification-degrees-indias-blockchain-project/

[7] Biesta G. *The beautiful risk of education*. Boulder: Paradigm Publishers, 2013.

educational technologies are used to support/supplement/replace teachers. Supporters of the neoliberal approach ignore the philosophy of education and classical pedagogy based on the fundamental belief that education is unpredictable, open and risky. Because it is unprofitable for economists who seek to create an educational system with an ideal match between costs (expenses) and the result ("human capital") (M. Deimann, 2019 [65]).

As we can see, the post-digital university is changing not only its structure and architectonics of the educational process. Its content is also changing significantly. If digitalization in education was mainly aimed at increasing access to the Internet and using the latest technologies in the educational process, then post-digital universities will have to answer much more essential questions. How to preserve the human being and the human in the endless digital and virtual space, how to awaken responsibility for global and local changes in it, how to contribute to the development of society and the common good?

Philosophers of education are unanimous on this issue. A radical restructuring of the education sector is necessary. The coronavirus pandemic gives just such a chance. As UN Secretary-General Antonio Guterres stressed, "we are given a unique opportunity to rethink the concept of education" (A. Guterres, 2020[8]).

The future of education depends on the efforts of modern educators and educational theorists, the future after most of the educational process is permanently transferred to the online sphere. In this regard, we consider it insufficient to determine the prospects for future education set out in the leading documents. Digitalization of education in itself does not mean anything. There is a need for a clear rethinking of the functions of education in a post-digital society, the place and role of universities as sources of knowledge, the development of new distance learning methods, and *most importantly, the mission of the education system, which after the pandemic can no longer consist in the supply of "intellectual techniques"* for neoliberal communities, *but should be linked to the formation of a responsible, creative, critically thinking community of people*.

Philosophers believe that "*it is necessary to return time for reflection, pauses, criticism in the classroom in order to avoid productivity and instrumentalization as the main task of the educational system*" (P. Jandrić, J. Manero, et al., 2021 (Educational lessons from global emergencies: towards non-human superiority)), to return to prepare people again for human society, and not for the market.

Education is politics, and its main function is to transform the world or reproduce it (C. Escaño, 2018[9]). If we rely on an active, participatory, democratic society, educational philosophers believe, *we need a purposeful post-digital critical pedagogy that encourages both creativity and imaginative thinking*. One of the goals of such pedagogy is to destroy the social assumption of human superiority and the binary thinking "human/non-human" (M. Peters et al., 2020 [66], F. Rizvi et al., 2020 [67]).

The coronavirus pandemic, as well as other global disasters of humanity, have revealed serious inconsistencies in the field of education.

[8] Guterres A. The future of education is here. *Launch of the Policy Brief: Education During Covid-19 and Beyond*. Speech by Secretary General António Guterres. 2020. URL: https://www.un.org/en/coronavirus/future-education-here

[9] Escaño C. Pedagogía (crítica) en tiempos del neoliberalismo. In: R. Aparici, C. Escaño, & D. García-Marín (Eds.), *La otra educación. Pedagogías críticas para el siglo XXI*. Universidad Nacional de Educación a Distancia, 2018, pp. 125–141.

For many years, it was believed that education can be effective if it is highly productive and adaptable to the conditions of the existing market. *The pandemic has* severed this relationship. It *put in the first place not the productivity of education, but its social characteristics*. Scientists believe that, despite all the negative consequences of the pandemic, it should be given its due – it can provoke a serious reform of the education sector, its reorientation from the market to the needs of society.

Conclusions

Summing up the research, we note only the fact that *the digitalization of the educational process itself, described in the leading documents on education, will not lead to any results, unless it is accompanied by serious transformations in the content of education*. A radical paradigm shift is *needed*, the rejection of the neoliberal, standardized, algorithmic structure of the university, *its transition to a socially significant, critical, responsible structure*.

New technologies, as well as digitalization in education, should not be a goal, but a means. Only then can progress in education and significant social transformations be possible.

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Научная статья / Research Full Article
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Трансформация системы высшего образования в условиях цифровых изменений: обзор исследований тенденций развития пост-цифрового университета

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Проблема и цель. *В данной статье представлен анализ ряда академических исследований (в Российской Федерации, Республике Казахстан и мире) о проблеме развития будущих перспектив системы высшего образования (постцифрового университета). Цель статьи – определить философские аспекты происходящих изменений на основе обзора текущих исследований проблемы.*

Методология. *Основными методами предлагаемого исследования выступают философский анализ научных работ в сфере образования, а также обзор философской литературы 2020-2023 годов по вопросам тенденций развития пост-цифрового университета.*

Результаты. *Авторами отмечается, что в настоящее время поставлены на первое место не производительность образования, а его социальные характеристики.*

В пост-цифровом университете необходима кардинальная смена парадигм, отказ от стандартизированного, алгоритмичного устройства университета, его переход к социально-значимому, критическому, ответственному устройству.

Авторами показано, что новые технологии, равно как и цифровизация в образовании должны быть не целью, а средством. Только тогда возможен прогресс в области образования и значительные социальные преобразования.

Финансирование проекта: Исследование выполнено в рамках научно-исследовательского проекта ИРН AP09058341 «Трансформация ценностей казахстанской системы высшего образования в условиях поликультурного и глобализирующегося мира» и выполняется в рамках грантового финансирования Министерства образования и науки Республики Казахстан.

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***Заключение**. В заключении авторами отмечается, что сама по себе цифровизация образовательного процесса, описанная в ведущих документах по образованию, не приведет ни к каким результатам, если только не будет сопровождена серьезными трансформациями в содержании образования.*

***Ключевые слова:** современное общество; система высшего образования; цифровизация образовательного процесса; пост-цифровой университет; философия образования; будущее образования.*

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