Problems and Risks of Digitalization in Higher Education

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Abstract. The article offers a critical analysis of the impact of digital technologies on higher education. The digitalization of higher education is discussed in relation to broader socio-cultural and political and economic challenges: globalization, commercialization, socio-economic inequality and ethical issues of technology application. Using this approach, it is demonstrated that the rapid digitalization of higher education during the pandemic has activated already existing points of tension and problematic trends: the 'McDonaldization' of education, new managerialism in higher education governance, increasingly consumerist attitudes to learning, and the development of the elite education model. Secondly, digitalization has introduced new risks related to the growing influence of global technology companies, online modes of the commodification of learning, the digital divide as a factor of educational inequality, and new ethical challenges. If these risks are not addressed in a timely manner, digitalization may jeopardize the creative self-organization of educators and students, hinder the development of diverse and ethically responsible practices of technology use, and further unbalance the higher education system and increase its dependency on commercial technology companies. To mitigate the risks, it is recommended that the academic community scrutinize the educational principles and ideas that currently guide the development of educational digital technologies, and that it should take a proactive stance on how these technologies should work and which pedagogical and ethical principles should inform their design. It is likewise essential to support the development of alternative models of digital technologies for education to be designed in partnership with all stakeholders in higher education.

Keywords: higher education, digital transformation, digital technologies in education, globalization of education, 'McDonaldization' of education, commercialization of education, digital divide, contract cheating, digital learning analytics, edtech

Introduction

The coronavirus pandemic has shown how significant "digitalization" has become for education. While the digitalization of education in Russia has attracted increasing attention, there have been relatively few critical studies of this phenomenon and the associated socio-cultural risks [1, p. 85]. We begin by briefly reviewing the main directions of the analysis of digitalization in the Russian-language literature.

The first strand of this literature focuses on specific experiences of digitalization of education through analysis of individual cases of digital transformation projects [2–4], existing technologies and issues around their practical application [5], and participant perspectives on digital educational technologies [6–8]. In these publications, digital technologies are considered mainly as a neutral tool – as something that does not carry any normative values, serve anyone's strategic interests, or represent an outcome of any broader socio-cultural or economic developments. The limitation of these studies is that they do not aim at developing a systemic understanding of this phenomenon or analyzing its connection with broader socio-cultural and economic issues.

The second strand of the literature can be defined as technopositivist. In contrast to the first strand, representatives of this strand consider the digitalization of education at the macro level [9–11], assuming that digital technology unconditionally contributes to the progress of both the individual and society as a whole. This approach considers societal progress from an economic point of view and the education system as a tool in the service of the (digital) economy. Its limitation, in our opinion, is that it does not allow for a critical understanding of digital technologies in education and an assessment of the socio-cultural risks associated with it. It is difficult, for example, to assess the impact of digital technologies on the social mission of higher education, going well beyond its economic functions – that is, how it helps individuals integrate into the social world, assists them in developing their worldviews and equips them with methods of accessing, sharing, and creating scholarly knowledge.

The third strand of publications on digital higher education takes a critical stance on digital technology. Some publications consider this phenomenon through negative representations – for example, as "the road to the unknown", "a violation of the established way of life and practices" or "a great risk, a venture with an *a priori* unknown outcome" [12] – while others weigh the arguments "for" and "against" digital technologies in education and even develop lists of potential threats associated with them [13–15]. The critics of digital technologies in education often single out one particular issue for their analysis, such as the impact of digital educational technologies on moral standards and ethics [16; 17], physical and psychological health [18], or cognitive processes and individual creativity [19]. This critical strand of the literature has initiated a broad discussion of the role of digital technology in education. However, not even these publications seem to have succeeded in analyzing the digitalization of higher education as a systemic phenomenon, the evolution of which is influenced by socio-cultural and political-economic processes, and which also itself affects these processes.

The objective of this article is to address the theoretical and methodological gap in the above literature and to:

• examine digital technology as a site through which interests, values and ideologies can influence higher education;

• analyze the relationship between digitalization of higher education and broader socio-cultural and political-economic processes and phenomena that will determine the course of the development of digital technology in edu-

cation in the near future: globalization, commercialization, socio-economic inequalities and ethical aspects of technology use; and

• identify the points of tension and risks arising from the development and application of digital technologies in higher education.

To achieve these objectives, we apply the critical socio-technological approach proposed by Selwyn and Facer [20–22], which includes the following methodological requirements:

• to move beyond the utilitarian approach to evaluating digital technologies as a means of achieving optimization and efficiency of the learning process, and instead to consider the contribution of these technologies to the fundamental tasks of higher education;

• to cease considering digital technology as a "black box" whose design and functions are supposedly predetermined by some universal logic of technological development, and turn the attention to the stakeholder groups influencing the development and application of technology in education and how their competing interests and priorities influence technological design;

• to scrutinize values, principles and conceptions of learning currently informing the design of dominant digital technology models;

• instead of speculating about the potential uses of digital technologies in the distant future, to focus on the problems, limitations and risks associated with the use of technology in the present;

• to consider digital technologies in direct relation to the socio-cultural and political-economic context in which they are developed and used; and

• to examine the possibilities of creating technological alternatives to the dominant forms of digital technology – alternatives which would embody the principles of inclusion, openness and diversity.

To outline the contextual conditions in which digitalization of higher education unfolds, we identified socio-cultural and political-economic processes and phenomena which, according to forecasts, will determine the course of the development of digital technology in education until

at least the end of the 2020s [23]. We grouped them into four problem areas: globalization, commercialization, socio-economic inequality and ethical aspects of technology use.

Problem Area 1: Digitalization and Globalization. One of the effects of globalization on higher education is the unprecedented increase in student international mobility. According to UNESCO estimates, in 2018 there were nearly 5.6 million students enrolled in higher education programs in a country other than their home country. With the onset of the coronavirus pandemic, the number of students traveling abroad to study in the academic year 2020/2021 decreased by 59%. At the same time, the decline in international students' physical mobility was partially offset by an increase in virtual international mobility.[1]

However, there was a practical challenge in ensuring the quality of education within virtual mobility programs, especially in case of cross-border mobility, the value of which lies in students' experience of living and interacting in the sociocultural context of another country [24]. For example, according to the Australian national study of the Quality Indicators for Learning and Teaching, international undergraduate students who studied in a virtual cross-border mobility format in 2020 rated the quality of their educational experience significantly lower than international students studying online and located in Australia. A particularly low rating was given for the "learner engagement" criterion: only 42% of the students assessed it positively.[2] Participants in the European student mobility program Erasmus+, who had to

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[1] COVID-19: Reopening and Reimagining Universities: Survey on Higher Education Through the UNESCO National Commissions. UNESCO. Paris. 2021, p. 3. Catalogue number: 0000378174. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000378174 (accessed 08.03.2022).

[2] 2020 SES International Report. QILT: Quality Indicators for Learning and Teaching. The Social Research Centre. Australia. 2021, p. 4. Available at: https://www.qilt.edu.au/surveys/student-experience-survey-(ses) (accessed 08.03.2022)

switch to a virtual mobility format during the pandemic, noted the lack of opportunity to gain new socio-cultural experience, which physical international mobility would have given them [24]. The "Lessons from the 'Stress Test'" analytical report on the impact of the pandemic on Russian universities refers to international students as the "most vulnerable group" during the pandemic and highlights the lack of distance online education programs aimed at developing virtual international mobility.[3] Thus, looking at the digitalization of education from the perspective of its relationship with globalization, we can identify the first point of tension: digital technologies make virtual cross-border mobility possible, but at the same time, they do not in themselves ensure that students will experience a quality online education and acquire not only academic knowledge but also socio-cultural experiences and skills.

Another point of tension arising from the relationship between globalization and digitalization of education is related to the recent trends towards increasing homogenization of the global digital environment. One of its manifestations is the growing inequality of languages on the Web. The top content language on the Web is English (62.1% of all content created in 2021), followed by Russian (7.6%), and then Spanish, Turkish and Farsi (3.8%, 3.8% and 3.5% respectively). Other languages had a share of less than 3%.[4] It is noteworthy that while between 2011 and 2018, the share of English compared to other languages was decreasing (from 57.6% to 51.2% respectively), in the period between 2019

and 2021 it began to grow again (from 54.0% to 63.6%).[5]

At the same time, compared to previous decades, we are currently dealing not with a single global and open environment that is the Web, within which one can speak of a dominant language and culture, but with a number of closed information spaces that have emerged as a result of the development of proprietary digital platforms, paid mobile applications and multilevel Internet access tariff plans [25]. To this list can be added access restrictions imposed by individual governments in an attempt to limit the influence of global forces on domestic processes. As a result, there are fewer prerequisites for dialogue between these separate informational, cultural and educational spaces that make up the current Web, and thus, for an equitable exchange of knowledge, teaching and learning practices and educational experiences.

We now elaborate on platformization: the rise of digital platforms as the dominant economic and infrastructural model of the current global digital environment and the penetration of the organizing principles of digital platforms into the political, economic and cultural spheres [26; 27]. Digital platforms are vertically integrated online ecosystems built on big data analytics, personalized algorithms and real-time digital communication. In education, the use of digital proprietary (paid and closed) platforms and related digital products permeates learning and education management. The pandemic has further accelerated this trend: new online educational platforms, particularly from China and India, have entered the global market while existing educational platforms have consolidated through mergers and acquisitions and integrated smaller mobile learning apps into their ecosystems. The pandemic has also seen the rise of global publishing corporations offering universities, apart from digital platform services, ready-

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[3] *Uroki «stress-testa». Vuzy v usloviyakh pandemii i posle nee: Analiticheskii doklad* [Lessons from the "Stress-test": Universities During the Pandemic and After It. Analytical Report of the Ministry of Science and Higher Education of the Russian Federation]. June 2020, p. 27. Available at: https://ftp.skolkovo.ru/web_team/School/2020/03072020_report.pdf (accessed 08.03.2022) (In Russ.).

[4] Number of Internet Users by Language. Internet World Stats. 16 August 2021. Available at: https://w3techs.com/technologies/overview/content_language (accessed 08.03.2022)

[5] Historical Yearly Trends in the Usage Statistics of Content Languages for Websites. Internet World Stats. 07 December 2021. Available at: https://w3techs.com/technologies/history_overview/content_language/ms/y (accessed 08.03.2022)

made online courses that the latter can deliver to their students. Recently, such corporations have been developing strategies to transform all aspects of the learning process into standardized online products (electronic textbooks, assessment tests, case studies, lecture materials, etc.), the value of which can be expressed in monetary terms [28]. Importantly, we are dealing not with single edtech companies but with an interconnected edtech industry consisting of global technological companies, almost all of which have their own education divisions. As demonstrated by Castaceda and Selwyn [29], the edtech industry is actively promoting innovative educational ideals (digital badges, the "smart campus", personalized learning), which, however, may have a self-serving purpose of influencing development of the education sector and thus expand the scale of the industry's commercial activities.

Platformization can be seen as one of the contemporary forms of the 'McDonaldization' of education. The term 'McDonaldization' was introduced by the American sociologist George Ritzer to describe the development of contemporary social institutions in the direction of formal rationalization, increased calculability, and heightened control over the behavior of individuals [30, p. 31]. One cannot but agree with Nikitin [31] that the 'McDonaldization' of higher education involves the commodification of education and the adoption by universities of the management model of a large corporation and − as we can add in the current digital context − that of a digital platform. From the methodological perspective of the neo-institutional approach which considers education as a social institution "implementing all the forms of secondary socialization" and handing over to students "programs imposed by society on the conduct of individuals" [1, p. 86], it becomes clear that the 'McDonaldization' of higher education can have profound consequences for society: if the development of the content, structure and methods of teaching is standardized and delegated to external actors (global publishing and educational corporations and, indirectly, to algorithms and operating models of

digital platforms), the latter will have the power to influence the socialization of students and the development of their values, norms, ways of thinking and professional skills.

The above discussion suggests that the Web as a vehicle of globalization of education is not as infinite, internationalized and diverse as it might seem at first glance: it extends only as far as teachers and students have access to a variety of information resources, and the skills and abilities to research, understand and critically interpret them beyond the influence of personalized algorithms and the limitations of proprietary digital platforms. Thus, fueled by both globalization and commercialization of education, another point of tension emerges: on the one hand, global digital platforms are exerting a growing influence on the educational systems of most countries in the world, while on the other, individual states, universities and teachers strive to preserve their autonomy in the matters of education and their ability to support the diversity, originality and uniqueness of the content, methods and forms of education.

Problem Area 2: Digitalization and Commercialization. The commercialization of education can be defined as a transformation of the education sector in line with market relationships and business logic. One manifestation of this process is the growth of the commercial form of education. Thus, in Russia in 2020, self-funded fee-paying students made up more than half of the student population.[6] The process of commercialization of higher education has deeper roots than the process of digitalization; however, the latter contributes to the development of new forms of the former and increases competition in the education sector, for example, through online marketing, private edtech corporations and world university rankings that allow for comparing universities online, as

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[6] Gokhberg, L.M., Ozerova, O.K., Sautina, E.V. (Eds). (2021). *Obrazovanie v tsifrakh: 2021 : kratkii statisticheskii sbornik.* [Education in Figures. Pocket Data Book]. Moscow: HSE, p. 41. Available at: https://www.hse.ru/primarydata/oc2021/ (accessed 08.03.2022). (In Russ.).

if they were a matter of consumer choice and competing commercial products.

Proponents of the commercialization of education argue that market competition has a beneficial effect on higher education, as it incentivizes educational organizations to innovate, use resources more efficiently, create more favorable conditions for student learning and take into account student feedback [32]. However, it is important to consider the negative consequences that participants in the education sector (students, teachers, managers, developers of digital technologies, etc.) may face if market logic continues to determine the course of the development of higher education and the adoption of digital educational technologies.

First of all, it may result in a transformation of the roles of students and teachers along the lines of a commercial model of "consumer–service provider", which can weaken their intrinsic motivation to teach and learn, making it difficult to develop collaborative relationships between them.

The consumerist attitude to education, which is actively promoted by the ideology of consumerism, creates the perception of education as a service for which students pay, therefore giving students the right to make demands and complaints if the service does not meet their subjective expectations. And although there is no consensus in the literature as to the extent to which students have internalized an identity for themselves as consumers of education [33; 34], when the idea of education as a commodity begins dominating the student worldview, it leads to several negative consequences. Academic results and learner satisfaction decline [35], and students feel pressure to obtain quick returns on their investment in education, as if it were a financial investment [36]. Students find themselves alienated from the academic community. They position themselves as external beneficiaries of education rather than partners in the educational process [37]. There is another risk in students studying online: that they may start employing strategies that are more characteristic of online consumption of goods, ser-

vices and cultural products. For example, during the transition to online learning due to the pandemic, some students demanded from educational organizations a discount on tuition fees, since, in their opinion, distance online learning did not justify the fees they paid under the contract [38].

As for teachers, the digitalization of education poses a risk to the value foundation of their profession as they become predominantly valued as producers of online courses, which can later be reproduced without them or with their minimal participation. However, to ensure quality education, any educational course needs comprehensive teaching support and guidance and ongoing provision of feedback to students. In the context of commercial education, educational organizations often try to save on these teaching activities when delivering online courses: spending on these is minimized, for example by delegating them to online tutors employed on a casual basis. This creates yet another risk of a growing disconnectedness of teachers who become "atomized subjects" not integrated into a living academic community and thus deprived of the opportunity to discuss and co-create shared meanings, goals and standards of education [39, p. 293]. Overall, due to the combined impact of commercialization and digitalization on higher education, teachers as a group have become more vulnerable. They are more easily replaceable, their job is directly dependent on the market demand for their courses, and their activities are increasingly regulated and standardized, while their administrative workload is increasing.

The simultaneous commercialization and digitalization of education has created conditions for the expansion of managerial control over various aspects of teaching and learning. This tendency can be described as "new managerialism," a term defined by Deem [40] as the process through which the structures of the public sector adopt organizational forms and technologies, governance practices and values more common in the private sector. Thus, with the aid of digital technologies, managers of

educational organizations have acquired more decision-making power and control over the direction of the education process, its organization and even the pedagogies used by teachers. A survey of educators around the world showed that during the pandemic managers tended to make the decisions in terms of the organization of online learning without involving teachers in the discussion on these matters.[7]

Finally, new actors in education have emerged: for-profit edtech and IT corporations. In today's world of digital education, computer engineers, programmers and data analysts who create commercial educational software often have more influence over the educational process than do teachers themselves. They have the power to define the values, principles and metrics that underlie the logic of educational technologies. Thus, Jones [41] points out that many technologies widely used in education today were originally developed for commercial purposes and, accordingly, did not take into account the specificity of pedagogical practices and relationships. Selwyn [20] emphasizes that digital technologies are based on principles that are alien to the educational environment: competition among users despite an appearance of cooperation between them, a hyper-individualized worldview, highly informal interactions resulting in uncertainty and a fragmentation of the educational experience. The design of digital educational technologies by commercial companies is often driven by their goals of maximizing the number of users through "seamless integration," binding the users to the digital platforms and expanding control over user data flows [42]. The behaviorist conception of learning prevails amongst the developers of artificial intelligence applications and big data algorithms for education, which represents students as irrational individuals whose behavioral habits are subject to measurement by computer algorithms and modification through incentives and "nudging"

to optimal actions to achieve predefined results [43]. Thus, the students are positioned as objects to which computer algorithms are applied and, ultimately, as "products" of algorithmic computer systems.

Problem Area 3: Digitalization and Socio-economic Inequality. In this section we consider whether digital innovations in education help to overcome socio-economic inequalities or inadvertently exacerbate them.

On the one hand, innovations have increased access to educational resources for a wider population. Thousands of massive open online courses (MOOCs) and many online courses from the leading universities have become available for free or at a relatively low cost, making education potentially accessible to those living in remote areas, having low incomes, or planning to combine education with work, childcare and other activities.

On the other hand, access, ability and motivation to use digital technology for educational purposes are themselves unevenly distributed in society: as, for example, in 2020 only 27% of Russians had a high degree of digital literacy.[8] As the digital divide theory suggests, digital technology alone cannot guarantee a more equal and equitable distribution of educational opportunities in society, and not all population groups benefit equally from the spread of digital education. Even though in 2017 Russian university students on average had higher levels of digital literacy than the rest of the population, their level of proficiency in advanced digital competencies remained low.[9]

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[7] The State of Higher Education: One Year into the COVID-19 Pandemic. (Report). OECD. July 2021, p. 16, doi: 10.1787/83c41957-en

[8] [Digital Literacy of Russians: Research 2020]. *NAFI: Analytical Center*. 2020. 10 April. Available at: https://nafi.ru/analytics/tsifrovaya-gramotnost-rossiyan-issledovanie-2020/ (accessed 08.03.2022). (In Russ.).

[9] Bondarenko, N.V., Gokhberg, L.M., Kovaleva, N.V. (Eds). (2019). *Obrazovanie v tsifrakh: 2019 : kratkii statisticheskii sbornik* [Education in Figures. Pocket Data Book]. Moscow: HSE, pp. 81–93. Available at: https://www.hse.ru/primary-data/oc2019 (accessed 08.03.2022) (In Russ.).

It is also important to consider the impact of the digital divide on teachers' capabilities. Not all teachers have the digital skills and resources to harness the full potential of technology in their teaching and to make informed choices about the technologies best suited to their context. According to an OECD (Organization for Economic Cooperation and Development) report, during the transition to online learning during the pandemic all countries experienced a shortage of teachers trained to facilitate online courses.[10] In Russia the majority of teachers (60%) noted that they lacked the technical skills to work with the digital systems and services used in online education and experienced difficulties with the learning design of their online classes.[11] As a result online education was often delivered through traditional delivery methods such as a lecture format with slides and test-based knowledge assessments [44, p. 64].

Moreover, due to the uneven distribution of resources, the spread of digital education can worsen the inequality between metropolitan and regional universities. An expert survey at four regional universities in Russia revealed concerns that the leading universities, which are better prepared to implement digital innovations due to having greater digital resources and competence, "benefit *a priori*" from digital education. However, there are also regional universities which consider online education as a source of advantages and opportunities for strengthening collaboration with other universities, including universities abroad [45].

These examples show that it is possible to overcome the digital divide and successfully use digital technologies to create educational advantages not only for the most well-resourced regions, universities and population groups. However, it is important that these examples become the norm, otherwise there is a risk of developing the scenario described by Noble back in 1998: quality higher education is becoming only for the privileged, the rich and the powerful. For everyone else a "dismal new era of higher education" was dawning [46, p. 368]. This point of view is echoed by Yakovleva, who warns us about the dangers of "the elite model of education" in Russia, which implies the division of higher education into two separate spheres: high-quality education for the elite, which is ready to pay, and subpar education for everyone else [47, p. 55].

Thus, despite the abundance of new opportunities that digital technologies offer for self- and skill development, those who benefit most from these opportunities are resource-rich regions, the leading universities and certain population groups which have better digital access, digital literacy and motivation for online learning, and the ability to select the best technology, online programs and courses. Hence there is a risk that under digital conditions higher education will turn into a scarce market commodity and, as a result, become more expensive and inaccessible to wider population groups and especially those who need it most.

Problem Area 4: Digitalization and Ethical Aspects of Technology Use. First, we focus on the ethical problems of the use of students' and teachers' digital data with the growing popularity of digital learning analytics — digital footprints, digital profiles, course and program analytics, etc. Digital learning analytics is often seen as a positive achievement of the digitalization of education, as it facilitates the monitoring and planning of the educational process. However, attention should be paid to the ethical risks that may be inherent in its algorithms: the reduction of multiple aspects of student learning and behavior to a small number of standardized quantitative indicators; the substitution of teachers' professional judgment and expertise

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[10] The State of Higher Education: One year into the COVID-19 Pandemic. *OECD*. 2021, 1 July, p. 13, doi: 10.1787/83c41957-en

[11] *Uroki «stress-testa». Vuzy v usloviyakh pandemii i posle nee: Analiticheskii doklad* [Lessons from the "Stress-test": Universities During the Pandemic and After It. Analytical Report of the Ministry of Science and Higher Education of the Russian Federation]. June 2020, p. 27. Available at: https://ftp.skolkovo.ru/web_team/School/2020/03072020_report.pdf (accessed 08.03.2022) (In Russ.).

with data analysis algorithms; the insensitivity of algorithms to the nuances of social context and individual student characteristics; the use of data to control the activities of individuals, and data security risks.

The next set of ethical problems arises from the high level of individualization and flexibility of learning that technologies afford. On the one hand, this is seen as an advantage of digital technologies, as they allow students to be more autonomous and take responsibility for planning their own learning and reaching their learning goals. However, research shows that the image of an independent, active and self-motivated student thriving in a digital environment is one of the "myths of digital education" [48], as many students find it difficult to organize their learning process by themselves and need ongoing support and feedback from their teachers.

In the long run, the hyper-individualization of learning increases the risk that education will be increasingly perceived as a private good which is designed primarily to meet the private needs of individual students. This may call into question the existence of higher education as a public good. The ethical question is whether digital higher education can continue to fulfill its role in the production of "common goods," which Marginson defines as "goods that bring major benefits to the population," foster social connections, strengthen local communities, support inclusive norms in human relations and contribute to a more equitable distribution of social opportunities [49, p. 18].

Another ethical challenge is academic dishonesty (contract cheating) among students. According to an aggregate estimate, 15.7% of students in Western countries engage in contract cheating [50]. Research on student academic dishonesty in Russia found that this behavior has been on the rise and that students are becoming more open to it [51; 52]. Academic dishonesty is not new and existed long before the digitalization of education. However, only in the last decade have we seen the emergence of a global industry offering contract-cheating services, including fake diplomas, impersonation in tests and exams and custom written assignments. Using information and communication technologies, contract-cheating companies have created a multi-million-dollar network of ghost writers who are ready to fulfill students' orders at any time of the day or night. As a result, there are more opportunities for students to access contract-cheating services through websites, mobile applications and social networks, while teachers are experiencing a progressive shortage of time and resources to identify and investigate all potential violations of academic integrity, particularly as mass online learning makes it difficult for them to maintain direct personal contact with each student.

Finally, the digitalization of education poses an ethical problem of environmental responsibility and sustainable development. The widespread use of digital technologies in education is resource-intensive and produces a negative impact on the environment in the long run [23]. The production and operation of electronic devices and network equipment as well as the maintenance of data centers and the Internet capacity needed to support digital education consume precious minerals, require large amounts of electricity, create a high carbon footprint and generate hard-to-recycle electronic waste. As a result, the large-scale digitalization of education poses serious environmental risks which should be taken into account when developing any further digital strategies or practices in education.

Conclusion

The use of the socio-technological approach allowed us to consider the digitalization of higher education and how it relates to broader socio-cultural, political and economic issues, and to show that this process is internally contradictory and generates points of tension and risks within the following four problem areas:

1. Accelerated digitalization during the pandemic intensified the already existing tension between the globalization of education and the autonomy of national educational systems with their cultural and pedagogical diversity. A new type of carrier of globalization in the education

sector has emerged – the global IT and edtech companies, and in particular, global publishing corporations and developers of digital educational platforms. They have the power to influence the educational process through the principles, values and metrics that they embed in the user interface design and algorithms of digital education platforms, and in some cases wield this power directly, through standardizing and controlling the content of educational programs themselves. Thus, there is a risk of creating a less balanced system of higher education in which global technological players define educational values and ideas and set the direction for the development of the education sector. On the one hand, this could undermine the independence of higher education as a social institution, and, on the other, weaken its ability to be accountable to students, the academic community and society at large for educating, socializing and creating and disseminating scholarly knowledge.

2. The combined impact of commercialization and digitalization on higher education has affected all participants in the educational process and changed the conditions of their activities, roles and positions of power. For students, the tension between the "consumer" attitude to education and education's intrinsic value as a source of knowledge and personality development has increased. Many teachers have also experienced tension caused by the standardization, controllability and fragmentation of their activities as a result of digitalization, which is also affecting the fundamental values of their profession such as independence, academic freedom, creativity and responsibility. Finally, computer engineers, programmers and data analysts are exerting a growing influence on educational processes through developing commercial educational software and thereby shaping the behavior of students and teachers.

3. Digitalization of higher education has had a mixed impact on socio-economic inequality: on the one hand, digital technologies have widened access to higher education, creating educational opportunities for those who cannot study offline; on the other, they have produced new forms of socio-digital inequality that do not allow all sectors of the population to fully participate in digital education formats or derive equal benefits from their distribution. Most often, the winners are regions, educational organizations and population groups that are already resource rich and from the outset have the best digital resources, skills, motivation and ability to select quality online programs and courses. As a result, there has been a growing stratification of the higher education system into elite and mass segments, which makes quality higher education less accessible for wider population.

4. The digitalization of education has also posed new unprecedented ethical challenges for the academic community: ethical risks of using digital learning analytics, hyper-individualization of education at the expense of its role in fostering the common good, new forms of academic dishonesty with the aid of digital technologies, the impact of widespread digitalization on sustainable development and the environment. Understanding and preventing these problems requires that all participants in the education sector develop a higher degree of ethical awareness and accountability.

Based on the findings, the academic community is encouraged to take a more proactive stance in terms of why the digital technologies they use in teaching are designed and work the way they do. This includes scrutinizing the dominant educational technologies in terms of their alignment with pedagogical objectives and evidence-based models of learning and teaching, restrictions they may impose on the educational process, their properties and functions that need to be changed or added, their impact on the digital inequality among students and teachers and the environment, etc. Overall, it is important to create conditions of possibility for the development of alternatives to the currently dominant models of digital technologies in higher education, ideally achieved in partnership with universities, teachers, students, education experts, governments and representatives of local communities.

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