Changes in the Ecosystem of Education in a Turbulent Society

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ABSTRACT

The article studies the changes in the education ecosystem in the context of the increasing turbulence of society. The continuous and often aggressive nature of these changes requires appropriate philosophical reflection to prevent various deformations, including in the educational system. The problems of changes occurring under the influence of COVID-19 in education as a specific problem of the article, the authors are supposed to consider the standpoint of functional, structural, and interdisciplinary approaches. Contradictions in the development of the educational system are initiated by many factors. Today it is a pandemic, something different. The authors believe, that the determining factor for the increase in turbulence is the uncertainty of state policy in the formation of ecosystems of learning and education. The pronounced consequences of this are the fictitiousness of education and a decrease in the quality of human capital. These consequences have been further exacerbated in the context of the pandemic, the forced transition to distance education, and the accelerated digitalization of educational interactions. The authors consider these phenomena as aggressive enables of social turbulence. The quality of learning and education ecosystems turned out to be not quite sufficient to quickly overcome the current challenges; this led to multiple organizational and psychological stresses; this pushed society towards new foundations for optimizing educational interactions; human capital (students, schoolchildren, teachers, family) are forced to solve the problems themselves. Before the state solved it. Problems arose that had not yet been subjected to psychological, philosophical, and pedagogical reflection.

Keywords: turbulence of society, philosophical understanding, COVID-19 pandemic, uncertainty of state policy in the formation of learning and education ecosystems, quality of human capital, distance education, digitalization of educational.

1. INTRODUCTION

The modern world is full of such phenomena that traditional mechanisms do not perceive and explain how qualitatively reduce the risks of this world. This applies to all social institutions that form the basis of social interactions. However, more often social institutions that are "tied" to the direct simulation of human capital assets are subject to social turbulence. The main ones are education and learning as the most important element. External and internal enablers of turbulent phenomena in education and learning are now studied quite widely and qualitatively [1-3]. But the COVID-19 pandemic showed that linear analysis is not always suitable for explaining unintended phenomena in programs and foresight. This is what happened with the "sudden arrival" of COVID-19, which literally "collapsed" plans for the development of the global and Russian educational system. Just

recently, UN Secretary-General A. Gutiérrez presented a concept note, "Education in the Age of the COVID-19 Pandemic and onwards", he cites the data that nearly 1.6 billion students were affected at the height of the pandemic, that is 94 % of the world's student population. UNESCO projections suggest that 24 million students (from preschoolers to undergraduates) are at risk of not returning to school at all due to the closing down of educational institutions in 2020. A. Gutiérrez, in his video appeal on the occasion of the presentation of this note, stated: "We now face a catastrophe that has affected an entire generation and has the potential to spend uncountable human potential, mine decades of progress and widen the inequality " [4]. But COVID-19 is external deformations enable that came unexpectedly Its social function was to exacerbate those processes and contradictions that already existed inherently in the scope of the educational system (essentially consists of learning

and education ecosystems and their human capital assets). The fact is that today's transformational technologies (distance learning and education) create a new educational system. The process of creating this new system is accompanied by a lot of tasks with variables. The linearity of traditional education is being replaced by nonlinear educational interactions, and today's move to online learning is exacerbating the contradictions between "classics" and "innovators" in the pedagogical community. Diversification and freedom become the basic principles in the perspective of building a new education architecture, and this is not in the interests of educational management. These processes initiate the development of an engrained contradiction between the pedagogical community and bureaucracy at all levels. The information asymmetry as a result of COVID-19 has qualitatively changed the status of actors in the educational system. Digital divides, unequal access to the Internet and information, and collective networking gives rise to new subjects of educational interactions who work and study in virtual space. This means a new round of social turbulence as applied to education as a sphere of human activity.

Neither scientists nor ordinary people yet have any idea of the prospects and consequences of the development of a new reality: online education. Therefore, what is needed here is not even a sociological, but a philosophical analysis of the current situation. The authors of the article set a very concrete problem to determine the attitude of the educational community to the processes that take place in e-learning and to comment on this attitude from philosophical standpoints.

2. MATERIALS AND METHODS

The problem of the article is quite broad. Therefore, it is necessary to differentiate the literature according to the issues. The criterion for dividing the literature into blocks will be the level of its integration into the issues we are interested in: the turbulence of the modern educational system; the increasing turbulence under the influence of COVID-19; the pedagogical community response (students + teachers) on increasing turbulence. Since all available published literature on these issues cannot be mentioned, the authors will be cited only those sources that are most adequate to the interests and goals. The modern state of education is presented in a series of collective monographs of the Higher School of Economics [5,6], in the authors' works [7,8]. The influence of digital technologies on education is presented in scientific-journalistic [9-11], and scientific literature [12-18]. A lot of contributions on the theoretical and applied aspects of turbulence in society in the second half of the XX century and the first decades of the XXI century have been published [19-23]. Finally, analytical reports and digests of the Higher School of Economics [24-26] are the most informative in the block

of literature devoted to COVID influence on changes in educational interactions and the education ecosystem.

The references allow us to solve two problems: to form basic concepts and to get a general idea of research tendencies. Apart from the above, the research enabled the authors to form sociological questionnaires on COVID-19 impact on changing educational interactions.

3. RESULTS

Students` assessment of the organization of full e-learning at the Polytechnic Institute of Siberian Federal University for the research period 17.03. to 12.04.2020. (384 students of 1-4 courses left a review) and from 23.05. to 01.06.2020. (231 students of 1-4 courses left feedback). Before the term time.

1. The polytechnic institute students` quality assessment of e-learning on a 5-point scale:

1.1 The first survey. "1" - 38 students - 9.9%; "2" - 33 students - 8.6%; "3" - 123 students - 32.0%; "4" - 127 students - 33.1%; "5" - 63 students - 16.4%. The average score of assessment of e-learning organization of - 3.4 points in three weeks after the move to the enforced full e-learning.

1.2 The second survey. The Polytechnic Institute students` assessment of the quality of e-learning on a 5-point scale:

"1" - 15 students - 6.6%; "2" - 23 students - 10.0%; "3" - 85 students - 36.2%; "4" - 73 students - 31.4%; "5" - 35 students - 15.3%. The average score of assessment of e-learning organization - 3.4 points in more than two and a half months after the move to the enforced full e-learning. The average teachers` e-learning assessment is 3.7.

2. The absence of any problems (everything is satisfactory) in e-learning was noted

2.1 The first survey. 50 students - this is 13.0% of the total number of respondents.

2.2 The second survey. 34 students - that is 14.7% of the total number of respondents.

3. Required real-life communication with the teacher was noted

3.1 The first survey. 20 students – that is only 5.2%.

3.2 The second survey. 9 students - that is 3.9% of the total number of respondents.

4. Lack of normal and timely communication with some teachers (lack of teachers "online" due to schedules, as required by contact work in e-learning; lack of online lectures on some subjects; online explanations of practical assignments and supervision; be short of educational resources or, on the contrary, quantity over of downloaded material that is not directly related to the

topic of the lecture or practical assignment; not set tasks for assignments because to poor-quality material (content) and methodological instructions, or their absence; the students may spend a long time waiting for the teacher`s answer about their assignment (for example, on the "Forum").

4.1 The first survey. 114 students - that is 29.7% of all respondents.

4.2 The second survey. 96 students - that's 41.6% of all respondents.

5. The lack of computer literacy of some teachers and learning problems in association with this "phenomenon" noted:

5.1 The first survey. 9 students - that is 2.3% of the respondents.

5.2 The second survey. 4 students - this is 1.7% of the total number of respondents.

6. Complete self-tuition for some courses, only theoretical material and practical assignments without the complete absence of supervision:

6.1 The first survey. 25 students - 6.5% of the respondents.

6.2 The second survey. 26 students - this is 11.3% of respondents.

Our conclusion. The downloading self-study material without the lack of proper contact work is due to the absence or poor computer literacy of some teachers, who were only able to download the material (according to the instructions...) or used the help of "more advanced" teachers for this purpose, who, in turn, due to their workload cannot provide assistance and technical support to older teachers.

7. Set a greater number of practical assignments, both in subject matters and load, as opposed to in-person teaching and steering document, turnaround time is unreasonably short, noted:

7.1 The first survey. 53 students, that is 13.8% of respondents

7.2 The second survey. 23 students - 10.0% of the total number of respondents.

(Our conclusion: 1. Some teachers are confused and try to substitute study sessions for the added task; 2. Students do not know how to study without an instructor, tackle literature (theoretical material); have a low level of knowledge and without in-person teaching and teacher`s prompts, they spend much more time doing tasks according to the steering document).

In the traditional survey conducted at the beginning of the academic year "What forms of supervision do you prefer: real-life communication - 100%; allow other forms of communication - over 50%, (e-mail, phone, chat, e-learning course forum; any form of supervision, where less than 50% of real-life communication (Skype, e-mail, phone, chat, e-learning course forum) and, after a forced distance, Only one control group (86 students) in took part in after term time survey (after enforced e-learning).

The Results of the September-October 2019 first-year students 'survey. Eighty-six students participated in the survey: 48% of respondents preferred 100% e-learning forms (email, phone (messengers), Skype, Zoom, chat, e-learning course forum); 34% of students favored real-life communication, and e-learning forms (email, phone (messengers), Skype, Zoom, chat, e-learning course forum), depending on the question and situation 18% of students believe that effective interaction is only achieved I communication with teachers.

The results of a survey among the same group of first-year students conducted during a period of enforced e-learning, due to the COVID-19 pandemic, before the May 2019 term time. Only one control group (86 students) took part in after term time survey: only 9% preferred 100% e-learning forms (email, phone (messengers), Skype, Zoom, chat, e-learning course forum); 42% favored real-life communication, and e-learning forms (email, phone (messengers), Skype, Zoom, chat, e-learning course forum); depending on the question and situation 49% of students believe that effective interaction is only achieved I communication with teachers.

This difference in choice of interaction forms is also confirmed by the September-October 2019 and May 2020 surveys among first-year students in one control group. The results of the spring survey demonstrate the revealed problems related to unpreparedness to move to e-learning. The first problem is psychological unpreparedness for the term time (fear).

The results of the survey of first-year students were conducted in September-October 2020. 73 students took part in the survey: 12% preferred 100% e-learning forms (email, phone (messengers), Skype, Zoom, chat, e-learning course forum); 66% favored real-life communication, and e-learning forms (email, phone (messengers), Skype, Zoom, chat, e-learning course forum); 22% believe that effective interaction is only achieved I communication with teachers.

The results of the survey of second-year students were conducted in September-October 2020. 49 students took part in the survey: 61% preferred 100% e-learning forms (email, phone (messengers), Skype, Zoom, chat, e-learning course forum); 37% favored real-life communication, and e-learning forms (email, phone (messengers), Skype, Zoom, chat, e-learning course forum); depending on the question and situation 22% of

PREFERRED BY STUDENTS FORMS OF INTERACTION «TEACHER-STUDENT» IN THE DISCIPLINE «ENGINEERING AND COMPUTER GRAPHICS»
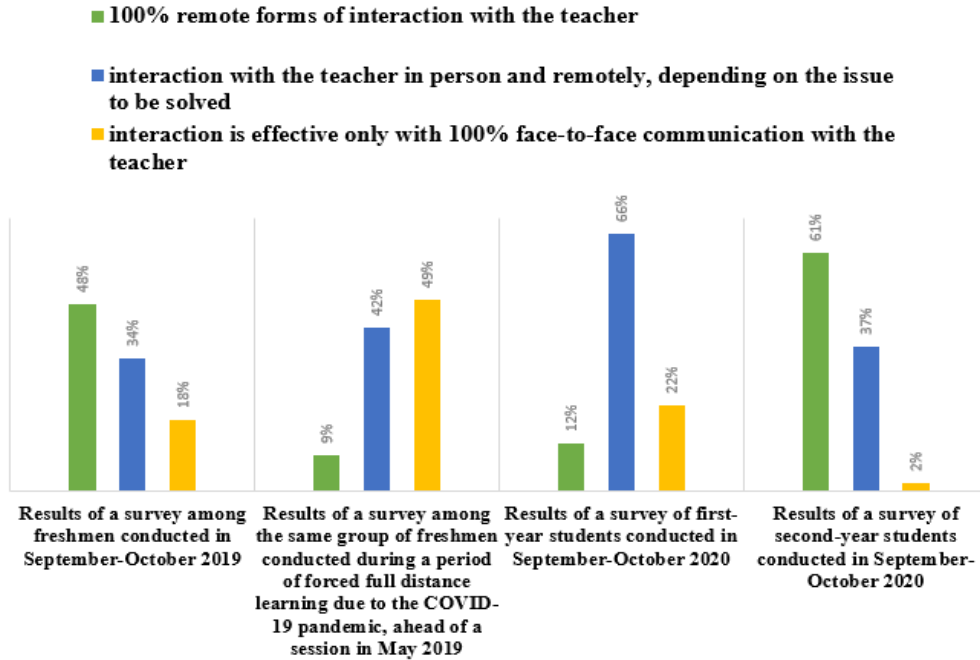
Figure 1 Students Surveys in 2019-2020 (the preferred forms of "teacher-student" interaction) based on the data of pilot sociological surveys of Siberian Federal University students.

students believe that effective interaction is only achieved I communication with teachers.

The survey data show students` preference of the desired forms of "student-teacher" interaction over the use of information and communication technologies and the Internet. Analysis of the results of the survey separately for first- and second-year students shows that second-year students prefer e-learning.

The results of the above surveys are clearly illustrated in the diagram (Fig. 1).

Thus, the increasing "need" of "live" interaction increases during risky periods (the move to full e-learning and the term) is obvious.

4. DISCUSSION

The Latin word "turbulentus" is polysemic and means "turbulent, chaotic, disordered. These semantic intents indicate the prevalence of non-linear processes, development vectors about-face, violation of the previous social order in some (or all at once) spheres of human life, growth of conflict, and multiplication of stressful situations in communities of various types, risk mania, and risk phobia. According to N.S. Rozov, all these meanings are determined by fundamental violations of

social, mental, and functional orders. Since it is the functional order that forms the social dynamics out of the above-mentioned trine, its monitoring allows us to state that today "challenges constantly arise, providing structures cease to be effective, costs become too high, new tensions and new strategies emerge, they turn into either failures or successes" [27]. We can observe all this as applied to global and Russian contemporary educational systems. That is why social philosophers emphasize another sense of the concept of "turbulence. This meaning is "concernment" as a model of management, in which it is impossible to solve arising problems unambiguously. At the same time, E.V. Shchekotin and R. Agarwal`s concept of heterogeneity in the management of social systems points out that in the current (i.e. turbulent) conditions the emphasis should be placed on management at the micro-level, i.e. "on direct interaction practices that take into account local specifics and features" [28,29].

Education as a stable system has the potential (in its classical version) of universalization, the relative closeness of rules and schemes, today demonstrates its inability to cope with aggressive challenges such as COVID-19. But, let us emphasize that the pandemic is an "external" factor to education. This factor has enabled contradictions that were previously formed in the

ecosystems of education and learning. The destruction of education and learning ecosystems is manifested in reality as diversity development; the fictitiousness of higher education, the deterioration of the quality of human capital asserts functioning in educational interactions. The current education "commercialization" changes the vector of learning in the direction of its professionalization. This is neither good nor bad. However, this vector in the entire development increases the tuition costs [30]. Disturbance of the education and learning ecosystems functional order is "from top to bottom". Today the developed countries state educational policy is built on the principle of "simplicity attracts" and, therefore, the slogan "why do you need higher education? It is a waste of time and money".

Further - it is more. "Live" (traditional) educational interaction is quite adequate in its value to online educational interactions. Real education fictitiousness is becoming a global problem [31]. The problem of credit reimbursement is the most important for students all over the world. This initiates the demand for free time and pushes the community toward e-learning (cheap, easy, and free time). The Internet popularity is increasing (information + educational programs). The process develops in a closed cycle. A person who takes the credit reimbursement → works in a bar→ he/she needs a day off, off day from his/her studies → he/she move to e-learning. The sellers of "superficial" education simplify it even more because good (live) education is expensive, it is based on "live" educational interaction. A new, virtually uncodified education and learning ecosystem are being formed. It is based on selling different types of an educational interaction - "live" (expensive) and online (cheap). The second principle of the "new" educational system: all the poor are pushed away from a good education. Even the middle class often loses the real (and not declarative) right to education. Learning differs from education, learning is an interaction of subjects (teacher-student) and its value is determined by the interaction. Education is the origination of these interactions as a social network. To attract a lot of people to this network, will cost a lot of money. There are not enough teachers for everyone, and the Internet becomes the "universal teacher". Living classical education, libraries, and books, experiments in laboratories, individual approach, and joint work with the TEACHER (rather than the universal education individualization) becomes individual and expensive. But the mythology about "higher education valueless" [32-34] is developing everywhere. These myths have one immutable value (if it can be considered such). They reduce social tensions and hide educational inequalities.

COVID and e-learning together "break" traditional educational interaction. According to the authors, the main subject's awareness of the educational system includes specific individuals and families (in addition to civil society, state, and business agents) discursively leads to the understanding of the value of "live" human educational interaction. And this awareness can change at a reaction speed. This speed correlates with the increasing complexity of the external situation. The greater the complexity and risks in the external environment to the individual, the greater the interest in "live" interaction. Particularity can turn into a trend that determines the personal functional order. This is well supported by the data of the sociological survey.

5. CONCLUSIONS

The classical version of the education and learning ecosystem turned out not to be ready to accept and "transfer" the new reality. The external factors' aggressiveness turned out to be so powerful that it not only activated the need for rapid adaptation but also acted as an enabler for the requirement for an optimal rapid resolution of "old" contradictions in the development of the "education-learning" ecosystem. Their previous integration turned out to be so weak that e-learning turned from an essentially "secondary" form of educational interaction into the main one due to external factors (COVID-19). Thus, there has been a classic inversion in the most important sphere of human activity. To overcome the inversion is possible in three ways: 1) Rejection of the old ecosystems model; 2) Recognition and development of a new one; 3) Convergence of the two models. Russia has chosen the third way, it has preferred the administrative way in the implementation of the convergence model. Thus, those development options of the Russian educational system were continued, they actualized their limitations and unsuccessfulness. The article expresses only the author's point of view.

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