

Education in the Context of Current Globalization

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Abstract

Drawing on the studies of works of the sociologists and politicians analyzing modern geopolitical trends and issues and on his own investigations in the realm of global and Russian environmental politics, the author came to the following conclusions. An education as a social institution and structural-functional organization has to be analyzed as a part of globalization process conditioned by the digitalization of mode of production and social reproduction (in other terms, by the Fourth scientific-and-technological revolution, hereafter the STR-4). At the same time, one has to keep in mind that recently almost any knowledge has not only complex but a hybrid character. It reflects the fact that every structure or process is actually a sociobiotechnical system (hereafter, the SBT-system). Such hybridization may be a result of natural processes or a particular thing of process is socially-constructed. Any hybrids are the results of metabolic processes. Therefore, the education processes are considered not as class-room work by children and students but as an all-embracing process of a 'learning-to learn', that is as a part of reciprocal enrichment of various institutions and groups of global community by using of scientific and technological innovations. I see the education as an all-embracing process of accumulation, selection, processing and practical use of information produced in all spheres of natural, social and technological activity. It seems necessary to strengthen an information exchange between the state, business and civil society institutions and initiative groups. The knowledge production and its use in emergency cases by the volunteers, and the phenomenon of a 'digital alienation' deserve special attention.

Keywords: critical case, globalization, digitalization, education, inequality, interdisciplinary knowledge, method, the SBT-systems, theory, volunteering

1. Introduction

Current information-communication revolution globalizing and making complex and uncertain the life of the world stimulates a substantial changes in the processes of education both young and old people. The changes in this process are going not linear. In some spheres of productive forces and social life they are going smoothly and linear while in other structural-functional areas of this life abruptly and unintended. But an overall trend isn't linear due to the growing gap between the developed and developing countries, an activity of the transnationals and a rapid reconstruction of a structural-functional organization of global community burdened with geopolitical and ethno-cultural conflicts and further hybridization of the complex i.e. sociobiotechnical systems.

It means that the existing educational system shaped before and after the Third industrial revolution has to be if not reformed but substantially transformed in accordance of current global conditions. One of the key issues of such transformation is how we are all, a society as a whole represent the essence of such changes. To my mind, there are two ways of doing it. One is to make the attempts to adjust the existing educational system to ongoing changes. The other is to consider the educational system as an inseparable part of current transformations. The article is based upon the accessible literature on the globalization and my own research practice in the run of 50 years including three international projects as well as on my own research of the emergency cases both in Russia and abroad.

2. Theory and Method

First, nowadays not only the education system but an overall process of human life including upbringing represent a learning process fully dependent on the processes of globalization and hybridization with its all twists, uncertainties and unintended consequences. The epoch of the separation of educational institute from other structures and

processes of global life is coming to an end. Of course, *I'm not neglect the very existence of the education as an important form of social theory and human practice*. But the further the more the regular institute of education is becoming a subaltern and inseparable part of global development in all its forms.

Second, in turn it means that modern institution of education is tightly interconnected with the above processes by means of permanent mutual exchange by the ideas, concepts, skills and crafts. The skills and crafts are as important element of a new knowledge production. Today, to gain new knowledge is sometimes necessary to build giant technical structures like the Large Hadron Collider while in the other cases it's necessary to be a well-experienced citizen insider.

Third, the production of new knowledge necessary to the educational processes is a constantly developing global structure as well constructed of a myriad of local-global cells interconnected by an information- communication network embracing the whole world.

Fourth, at the same time this global system of knowledge production has to be not only accessible at each point of global community but to be understandable for various groups of people at all points of modern educational process. That is, it has to be adapted to local conditions. Otherwise, we came to the loose of social and cultural diversity of humanity. And this global-local adaptability of new knowledge coupled with time limits of its validity is one of the most difficult issues of modern educational process.

Fifth, the archetypes of knowledge production are one more issue of the process in question. The matter is that there are at least three such archetypes: a 'positive' (useful), a 'negative' (harmful), and double-sided. But all of them have relative character. For example, every food-staff has its limits of storage, if it to overcome this food is becoming harmful. And vice versa: some micro-doses of toxic substances are used as a medicine.

Sixth, today the new knowledge production has to be tested and mastered in a particular social environment. It means that a 'top-down' knowledge production in the labs has to be mastered 'bottom-up', that is in situ by local environmental and other civil activists. Such two direction exchange is now necessary for nature protection and human well-being.

Seventh, any teacher has to keep in mind that recently almost any knowledge has not only complex but a hybrid character. It reflects the fact that every structure or process is actually a sociobiotechnical creature (hereafter, the SBT-system). Such hybridization may be a result of natural processes or be socially-constructed. The essence of hybridization phenomenon is the metabolic processes.

Eighth, in turn it means that any educational process is actually based on the interdisciplinary knowledge and the pupils and students have to understand that nowadays there is no monodisciplinary knowledge. Some mathematician formulae may look like as a monodisciplinary one but in essence such 'monodisciplinary' knowledge is a generalization of a multitude of different knowledges.

Ninth, modern education should supply the pupils and students not with a 'sack of information' but with the most acute trends of global development and its social, natural and other consequences. A teacher as well as a researcher has to have clear moral stand (position), and his/her pupils should be well-acquainted about it.

Tenth, today the knowledge gained in the universities and their labs as important as so-called citizen social knowledge gained by civil activists and the scientists turned politicians (Lidskog, 2008; Yanitsky, 2005; Purdam, 2014).

3. Resources

The article is based on my personal experience as a painter, architect and city planner, and environmental sociologists as well as on my personal experience of living in the big family of three generations presented by the doctors, geographers, mathematicians, militants, and polar researchers. Not immediately but by and large I began to realize how such diverse experience has been shaping me as the researcher and tutor.

Then, this experience has been expanded and confirmed by 15 years participation in the UNESCO's the 'Man and the Biosphere' program plus 2 years work as the adviser in the EBRD in London. During those years I took part in three international research projects. In one of them, 'Cities of Europe: The Public's role in Shaping the Urban Environment' the researchers and civil activists from 16 European countries took part. But the best practical school of globalization has been my periodical presence at the UNESCO's headquarters, a real global melting pot.

After then, in the years of perestroika (1988-1992) I'd been deeply involved in the study of Russian environmental movements across the country. On of such projects guided by prof. A. Touraine gave me a very valuable experience in the use of his research method named the 'Sociological intervention' (Touraine et al., 1983; Touraine, 1988). Then,

followed a set of basically-important theoretical works written by Z. Bauman (2001, 2004, 2017), U. Beck (1992, 1999), M. Castells (1996, 2004), and J. Urry (2003, 2007). In short, a global community is very mobile, unstable, unpredictable, risky, individualized i.e. uprooted from their native milieu (family, close friends' circle, and their Motherland) and consumer-oriented.

Besides, as U. Beck underscored many times, we are now living in a society of the after-effects. That is, we lost our ability to predict even the near future. The EU migration crisis and its political and human consequences is the best example. And a lot of other events confirm this viewpoint. That is the teachers should prepare their pupils and students to adapt to such risky and unpredictable environment of their future life.

My standpoint is that the school children and students have to be acquainted concerning the above global trends but, of course, in general. If not, they will be acquainted by mass-media but in a collage and politically-colored manner. As I wrote earlier (Yanitsky, 2019), this superficial view is usually shaping either by the state or by media-magnates.

How to teach the young people to distinguish the Breaking news and the real processes that are going across the world? The best way to be well-prepared to such risky and unpredictable living milieu is to involve schoolchildren and students into the resolving of current problems in situ and simultaneously to give them an adequate picture of ongoing global processes and transformations. That is why I've spent much time to the study with my young fellows of critical events like the forest fires, floods, man-made catastrophes and other 'normal accidents' (Perrow, 1984; Yanitsky, 2014). Participation in such critical cases, even selective ones allows to the young people to feel themselves as both insiders and the outsiders of various critical events.

Finally, I see methodologically important to show to the young people that every opportunity has its reverse side, be it various risky situations like extra expenses of time and money, or inevitable material or social losses. In other words, the education process as such has to show them that their life will be a struggle in various forms.

4. Education Under Globalization: What Is New?

First, as Büchler-Neiderberger (2010) clearly showed, modern child is not a subject of manipulation of the teachers or his/her parents but a social actor, very young and not well-experienced but the actor. Such actors sometimes are much more well-informed than their parents because these actors are the 'button-children' from early childhood.

Second, such 'button-children' are much more involved in a global life by means of the Internet with all its twists and unexpected consequences than the majority of the old people. Such gap often leads to misunderstanding and conflicts between a 'bottom-up' viewing the world of the old people and a 'top-down' mode of thinking of the teenagers. And it's a real conflict because each side is right on its own.

Third, until now the life of the elderly has usually been well socially and spatially organized (they have so-called dynamic stereotypes) and therefore their behavior was much more predictable than that of the children or teenagers. But recently the world has entered into a qualitative new state conditioned by an information-communication mode of production and social reproduction (Castells, 1996, 2000, 2004).

Fourth, recently 99 per cents of necessary information are coming from the Internet. Therefore children and teenagers are mainly 'educated' by means of the Internet while a distanced work is still not very popular, especially among the elderly and the jobless.

Fifth, so-called the Bologna process is Janus-like. On the one hand, it's really assists to the process of exchange of knowledges and competences between various European countries including Russia. But on the other hand, it burdens a higher education processes with many formal rules, codes and principles that slow down the most advanced students and young researchers. This unification of the European education process turned out into impediments for such advanced young researchers.

Sixth, more than that, the Bologna process cannot be spread in a majority of the Third world countries because their conditions didn't fit to the requirements of the above process. Sometimes this situation is profitable for developed countries because they are capable to select the minority of the best applicants putting aside the all others and so enlarging a social inequality.

Seventh, such phenomena as globalization, the Internet development coupled with minimal starting conditions allow to the young people to emigrate in the developed countries, and thus the social and scientific and technical gap between them and the rest world is widening.

Eighth, the previous thesis signifies that modern system of education has to be not only descriptive but politically-concerned. In particular, such discipline as the geopolitics came to the forefront. I interpret the geopolitics

as a complex discipline dealing with sociobiotechnical systems, and their structural-functional dynamics of various scale.

Ninth, it leads us to the following point. If we are dealing with such complex but qualitatively different systems we are as the tutors have to make the following step: to explain to the young people that the above SBT-systems exist only due to *the metabolic processes* between them and with the outer world.

Tenth, as Z. Bauman (2001, 2017) and many other theorists stated that in the globalized, permanently mobile and liquid world the learning is becoming a permanent process. But in current transition period we have a two-fold issue. On the one hand, the global community is divided in two categories: the mobile and immobile. The last one is usually becoming totally excluded ones. Bauman called them the wasted people (Bauman, 2004). On the other hand as K. Schwab predicted (2016), the process of digitalization of the whole world inevitably leads to the unprecedented unemployment.

5. A Role of Public Participation and Volunteering in Education

A public participation and volunteering are the necessary ties between a state and its inhabitants, between the science, education and social practice as well as between the reach and poor countries. There were a lot of international research projects that clearly showed a lot of positive results of the above interrelationships (see, for example: Castells, 1984; Deelstra and Yanitsky, 1991). In the digital age the amount and variety of civil organization continued to grow (De Donk et al, 2004; Stokols, 2018). As Russian experience clearly showed, the number, variety and the importance of civil initiatives and movements in its transition periods enormously grew as well (Stepanskyi, 1982; Yanitsky, 2013).

Under global society the roles of civil organizations in education process are as follows. *First*, it's to make young people more acquainted with the mechanics of modern society, and in particular with the state—civil society relationships. *Second*, the teachers should to explain to them a social and moral necessity of the maintenance of this bridge.

Third, to show to the students that a permanent speeding up on the globalization processes make the people uprooted and therefore insensitive to the sufferings of others. In the 1960s, my colleagues from the US and the GB saw not only necessary but as their moral debt to send their postgraduate children to the Rio favelas and to the other poorest slums as the volunteers. The volunteering is the best mean to understand the dark side of current globalization.

Fourth, the young people have to realize that the globalization with informatization make a gap between the reach and the poor countries every moment deeper, and a growing migration from the South to the North is becoming more massive. In the end, the choice is clear, either the rich countries actually began to diminish this gap, or they receive a mass migrants' flow like in the EU now. Anyhow, the students should be well aware that the gap between the rich and the poor is an acute geopolitical problem that has to be resolved with the active participation of civil society organizations.

Fifth, as to Russia, due to the giant sizes of its territory and rigorous climate there are still substantial differences between the wellbeing of inhabitants of the mega-cities like Moscow and St. Petersburg and some remote provinces. But we are at the beginning of the digitalization processes.

6. The Case-Study: A Volunteering in Critical Situations

Initially, it seems very strange but it is on the first glance only. The volunteering is the most adequate human response to entirely complex emergency situations (Keen, 2008) that is (in my terminology) in the case of the accidents with the SBT-systems in which such hybrid constructions are breaking generating the multi-sided and long-term risks. And such hybrid threatens to the health and lives of thousand citizens, and a help is needed as soon as possible. Let me remind that we are still living in the society of the side i.e. post-effects. The following text is mainly based on the interview with the doctor Migel Trevie from the 'Doctors without borders' NGO to the Echo of Moscow broadcasting station (18.05.2019) as well as on my personal experience of the study of post-catastrophe adaptation.

It's well-known that this NGO is usually working in extreme situations but quite a few people really know what is really mean. People only know that hybrid risks, be it local war, natural disaster or man-made catastrophe is happening suddenly and more and more often. Let me briefly explain what is actually means the work of the above NGO in the worst case?

First, it means that the doctors have to work in extremely uncertain social and other environment that is without the information necessary to organize their work. The total uncertainty is the first condition of their work. The people

from so-called 'civilized' countries cannot even to imagine how it's possible to work in such unacceptable conditions.

Second, as for the members of such NGOs, it signifies that they have to be trained complexly that is they have to be universally prepared to work in such extreme conditions. It's clear that the class-room knowledge will be insufficient. The Doctors without Borders have to be well experienced ones.

Third, it's a lucky chance when it's possible to send a full brigade with all necessary equipment by plain. But it's often happened that the scale of the disaster and the amount of affected people are unknown because the affected area may expand every day.

Fourth, besides this area is often the terra incognita because the language of aboriginal people is unknown, there are no interpreters, necessary medicines and dressings. Affected children can't explain what happened, they are only crying, etc. It stands for that the doctors have to start their work from scratch. In turn it means that such brigades have to be multidisciplinary and to be able to substitute one another.

Fifth, such emergency teams should have well-structured logistics. Its main criteria: a complexity, mutual understanding and interchangeability, and a time minimization because the resources of such brigades are usually limited both from inside and outside. Every emergency help has its time limits.

Sixth, such emergency cases are happened not only in African jungle but in our mega-cities. Therefore, to my mind, a monopolization of all, from the means of production till services and media, is now an all-embracing process. But very often people, especially urban residents who live in multi-story apartments suffered from the monopolization of local services because the owners of such local monopolies practice the doctrine of the 'collective responsibility.' For example, local electricity monopolies use to switch off an energy supply for such multi-story apartments because some of their residents didn't pay of the taxes in time. I'm not sure that Russian rescue forces are capable to cope with such emergence cases.

Seventh, I'm describing all this not with the aim to repeat the above experience literally. But the young people in all countries have to understand that such emergency cases may happen not only somewhere far off but with themselves or with their relatives, and friends. And even if not, the young people have to be prepared to the coming risky times of global warming or permanent hybrid wars.

Eighth, the schoolchildren and students should realize that recently something far off means here, and that weak impulses may cause a global disasters. And it doesn't mean that some will live in a set of closed but in interconnected social spaces while others will live in an open, uncertain, permanently mobile and hostile environment. It's a new form of inequality but how it may be to overcome? Such differentiation of the rich and the poor related to all places of living environment which is potentially risky. So that today every healthy man is a potential volunteer.

Ninth, the volunteering practice has very important moral overtone. Today to be moral sharing a particular morale doctrine only is an insufficient. To be really moral means to be able to join his/her moral stand with active civil position and public participation.

Tenth, as many volunteers stated after such extreme mobilization of human potentials it's difficult to return to a 'normal life'. But the matter is that the differences between critical and normal conditions are quickly effaced.

7. Digitalization and New Forms of an Inequality and Alienation

This paragraph is basically relied upon the M. Castells study of the Internet Galaxy (2004, first ed. in 2001). But during two decades some new facts and their conceptual comprehension have appeared that are needed of their comprehension from the viewpoint of education development.

First, a brief excursion in the history of the Soviet education system is needed here. In those times the transition process from the secondary school to the higher one and then to the first place of work has been moderated by various public organizations supervised by the Soviet state and Communist party organizations. Nevertheless, these organizations played a very important role as the bridge between the classic Russian-Soviet gymnasia and the university. It has been a well-organized transition between *closed classroom teaching and working* to a collective work in the real conditions at the enterprises and research institutions. But it has been a collectivism based on an existing division of labor of those times.

Nowadays, a school child and a university student have to be prepared to a quite another kind of labor and the way of life: individual, complex and dealing with an uncertain, complex, mobile and permanently developing world. Accordingly, modern labor, especially in the transition period from the STR-3 to the STR-4 is burdened with

periodical necessity of a resettlement to another place of work as well as to be prepared for a radical change of his/her work as such, or to become jobless at all and to shift to the category of 'human wastes' as Bauman had predicted (2004).

In turn it means that a majority of young people have no a guaranteed job, income and wellbeing. As one can see in the EU, the protests of the yellow jackets have emerged, in particular, for this reason. Coupled with continued influx of migrants it creates very uncertain situation for the postgraduates. To diminish this uncertainty the secondary and higher schools have to give their graduates not only the knowledges as such but the *practical skills how to adapt* these knowledges and themselves to a permanently and qualitatively changing social environment. In current transition to the digital society it's the main craft. To my mind, the above example of the 'Doctors without Borders' practice is a well-tested textbook for being more or less prepared to this transition period.

In Russia as well as in some other countries the shift toward exogenous practice of the transition to digital age is prevailed. This practice having been rooted in the long-term Soviet practice of industrialization means a combination of the borrowing of technological innovation from the developed countries with some domestic developments. It's a forced and temporary measure but it has some negative social consequences. The main of them is an ill-preparedness of the society to the coming radical structural-functional transformations.

Let's now turn to new inequalities created by the process of a society digitalization defined by M. Castells. 'The differentiation between Internet-haves and have-nots adds a fundamental cleavage to existing sources of inequality and social exclusion in a complex interaction that appears to increase the gap between the promise of the Information Age and its bleak reality for many people in the world' (Castells, 2004: 247). Let's me lay his arguments down point by point.

First, an access to the Internet alone is important but insufficient because nowadays the 'dominant functions and social groups are increasingly organized around the Internet' because it is not blind to color, in spite of optimistic statements of the scientists and politicians (Castells, 2004: 248-9).

Second, 'three other sources of differences in the Internet access appear. One is family status: non-family households... are the least likely to have Internet access.' The 'second source of division refers to geography: urban areas are more likely to have Internet access... The third divide refers to disability' (Castells, 2004: 250).

Third, a 'significant gap in access to the Internet for children from different social groups, and this could have considerable consequences for the future... Moreover, Low-income households were less likely to have the Internet access, even when they had computers' (Castells, 2004: 250-251).

Fourth, Castells underscored that to 'understand the dynamics of differential access, it is necessary to see it in a time perspective: how the access evolves over time for different groups.' He stated that with some exceptions most gaps have been diminished. It's indicative that 'even the age gap, supposedly rooted in the inability of older generations to adapt to new technologies, is shrinking rapidly...' (Castells, 2004: 251). This author argued that 'what increasingly matters in determining access to the Internet is less a question of the age than the relationships of individuals to work, as the Internet becomes an indispensable professional tool' (Castells, 2004: 252).

But at the same time the differences in computer access and ownership between ethnic groups still remains considerable, especially in the case of the new influx of migrants from the Near East and the North Africa to the EU and from various countries of the Latin America to the US.

Fifth, Castells stressed the emergence of so-called 'knowledge gap.' The 'Internet-based learning is not only a matter of technological proficiency: it changes the kind of education that is required both to work on the Internet and to develop learning ability in the Internet-based economy and society. *The critical matter is to shift from learning to learning-to-learn..., and what is really required is the skill to decide what to look for, how to retrieve it, to process it, and how to use it for the specific task that prompted the search of information*' (Castells, 2004: 258-9; my italics).

Sixth, the 'cumulative result of these different layers of inequality translates into vast differences in the effects of Internet use on educational performance.' Castells suggested that 'in the absence of corrective measures, the use of the Internet, both in school and in professional life, could amplify the social differences rooted in class, education, and ethnicity' (Castells, 2004: 260).

Seventh, I'm convinced that the digitalization processes enhance the old forms of alienation, and generates the new ones. A divide between the mobile and immobile parts of world population, the growth of the Internet i.e. de-personalized and therefore de-humanized communication, an opportunity to live simultaneously in the virtual and material worlds, the loss of strong ties with his/her Motherland, the abovementioned difficulties to manage with

permanently developed Internet technologies – all that leads to the growth of alienated individuals and groups. Besides, we shouldn't forget the expanding mass of the 'wasted people', especially in the poorest countries who feel themselves as alienated forever. As the experience of activity of social services shows, these people are ready to accept social, medical and other aid but the Internet for them is something beyond their interests and capacities.

8. Conclusion

From the times of the Enlightenment and onwards the education has been considered as one of the main drivers of economic and social progress. By very definition, the education was seen as the most sustainable and inertial social institution. But now in our very mobile and uncertain times it's necessary to look at the education process from the side of complex and rapidly evolving global reality both material and virtual. Accordingly, the world is now entering in a qualitatively new mode of knowledge production, dissemination and comprehension. Thus in its nature, the modern knowledge is becoming complex, interdisciplinary and developmental one.

In the Internet-based society and its economy the information, digital technologies and advance education becomes the critical conditions and resources of humanity development. But the dark side of these changes is the use of these achievements for further development of arms, the hackers' attacks and other means of political pressure and geopolitical domination over probable adversary. Accordingly, in our times the educational processes are becoming the Janus like. In sum, modern education is not a calm linear process. On the contrary, it's a permanent and tough struggle to which many people both from developed and developing countries have to be prepared, and therefore to be taught every day.

Hybridization of modern education means in particular a preparation the people of all ages to the living in a complex and mobile socio-biotechnical environment. But simultaneously a man should be well-armed with modern information instruments. More than that, he/she is forced to be prepared to manage with permanently renewed such instruments. Besides, the people have to be able to master the new terminology and cultural forms produced by the development of the information industry and network systems. These races are a very hard enterprise, and not all people are capable to bear such weight.

In other words, the new learning is oriented toward the development of the educational capacity to transform information into knowledge, and knowledge into action in permanently changing sociobiotechnical milieu. But in the digital age it's wrong to separate the development of educational process from a social learning of global community that is from how to live in these complex and permanently changing circumstances. Every step of social development has to be accompanied with an advancement of social learning in the widest sense of the word. Thus, recently the social learning means how to become a very experienced man i.e. capable to adapt to a diverse and permanently changing global-local living environment.

A radical shift from the comprehension of a child or teenager as a subject of teaching to a social actor is more or less clear now. Recently all of us are forced to live in a compressed, mobile, uncertain and competing milieu. It's not very comfortable but the way things are. It signifies that a kindergarten, secondary school and the higher one are only the parts of modern global mobile 'teaching' milieu. Conformably, the understanding of educational processes as an adaptation of the individual to a kind of well-known and stationary milieu is replacing by the adaptation to an uncertain, mobile and sometimes very hostile environment.

The effects of digital divide in each of social communities populated the world depends on the overall global political atmosphere. If it will be more or less calm, the exchange of new knowledge and educational technologies will have a variety of positive effects, but if the international tension will grow it will have the adverse effects including the development of knowledge and crafts for their use in the forthcoming new hybrid wars.

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