

Creative Education in the Critical Situations: A View from Russia

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How to cite this paper: Yanitsky, O. N. (2019). Creative Education in the Critical Situations: A View from Russia. *Creative Education, 10*, 2232-2245
<https://doi.org/10.4236/ce.2019.1010161>

Received: September 16, 2019

Accepted: October 25, 2019

Published: October 28, 2019

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Abstract

The article analyzes a possibility of creative education of civil society volunteers under a critical situation (hereafter the CS), especially in the transition period toward the Fourth scientific and technological revolution (hereafter the STR-4). Drawing on Russian and foreign literature, the author's long-term studies of environmental and other social movements in Russia and abroad, the author came to the following conclusions. First, the STR-4 opens new opportunity for the volunteers but at the same time the probability of risk emergence is growing. The world as a whole is entering in the epoch of hybrid phenomena in which "normal" and the "critical" situations are merging. Therefore, the creative education is much wider and more diversified than the "classical" one. *The creative education is a permanent process of adapting human activity and its institutions to multisided development of risky environment*, be it natural, social or technologically constructed. In the run of the CS, the time of risks transformation and their metabolic outcomes are becoming the key factors of the creative education. Therefore, the secondary and higher education have to outstrip the current local-global processes of environmental transformations i.e. the process of education should be based on the complex socio-bio-technical prognostics.

Keywords

Business, Cooperation, Creative Education, Critical Situation, Globalization, Information Society, Sciences, The STR-4, Transition Period, Russia

1. Introduction

Recently, Russia is in a transition period conditioned by a Digital revolution and permanently changing geopolitical situation. The process of digitalization produces substantial changes in all spheres of social life and its natural and technical environment. The response of all spheres of science and practice is still lagging

behind in comparison with the pace and comprehension of ongoing transformations. The principles of analysis of complex (systemic) approach to any changes occurring on the earth and cosmic space developed by Forrester (1971), Keen (2008), Naumova (2006) but many other world-known scientists are still analyzing these complex issues partially by every natural and social science separately. Paradoxically, but the more our world is becoming mutually interdependent.

The reverse side of the same coin is an inclination of many Russian sociologists and other humanitarian scientists to analyze these systemic transformations in very simple arithmetic terms like the “better or worse” or the “larger or smaller” without paying attention to interdependence of complex current transformations, be it of natural, social or technological origin. Systemic interdisciplinary analysis of any changes including the CS is still not in honor.

All said above mean that the institutional structure of human society and sciences studied it is lags behind ongoing global transformations as well. It's clear that a time is a critical condition for creative education in the CS.

2. The Main Characteristics of the CS

The CS isn't an economic or political crisis irrespectively of their scale and time duration. Earlier or sooner a social system will return to its “normal” state and mode of functioning. The CS is a real catastrophe (calamity) of a natural, social or technological character which generates substantial and long-term transformations in structural-functional organization of a society, in its aims and ultimate goals, etc. In the case of the CS the society has to be capable to predict its coming and to mobilize the rescue forces and other resources, and to adapt its structures and functions to a post-catastrophe state of matters.

A society's potential to cope with the CS and its after-effects is dependent on both of a scale and character of the CS and character of changes and scale of destructions produced by it. The CS and particular environment relationships are of no less importance because the changes produced by the former in the latter may generate a chain of the after-effects that may be as serious as initial CS. That is every CS may have a cascade and therefore unpredictable character, scale and time duration.

Finally, the CS may be a direct result of human activity when it deprives the natural ecosystems and their potential to regenerate themselves. It happens from time to time in Africa and other parts of the world as a result of an overgrazing, for example. In all the above cases, a capability to foresee (to predict) the coming CS is very important.

As Beck (1999) rightly stated, *we are still living in the society of after-effects* irrespectively be they decisions, economic or political crisis or a calamity. Thus, the aims of the article are to look for the means to overcome such dependence and begin to develop the measures aimed at prediction of a coming of a particular CS.

3. Creative Education in the CS: What Does It Mean?

First, in our interdependent world, there is no absolute difference between its “normal” and critical state or regime of functioning, especially if it’s going on about climatic changes, virus pandemia or the nuclear war.

Second, it signifies that this thesis coincides with the Latour’s (1987) view that the construction of any scientific knowledge corresponds with a hybrid or heterogeneous construction of a structure or process in question.

Third, every scientific knowledge is necessarily embodied a particular culture. In turn, this culture is a product of interactions and struggle of two kinds of knowledge, already politically and culturally accepted and therefore represent a kind of a systemic knowledge i.e. scientifically constructed and shaped by a local culture (Brush & Stabinsky, 1996).

Fourth, that is why we usually separate and sometimes opposing a professional knowledge and experience knowledge (or crafts).

Fifth, the process and results of any CS have two different components: those which are possible to predict its consequences and therefore to be prepared for the rescue operations and those which emerge in the process of the CS developments and their consequences.

Sixth, as it is well-known the local volunteers are much better informed about both the typical reactions of the residents on previous CS and resources in hands, and much less capable to predict concerning the coming CS.

Seventh, in a case of CS the civic volunteers are much less bound by numerous codes, rules and norms than the state rescuers, i.e. the civic volunteers are much more mobile mentally, organizationally and spatially. This conclusion is confirmed by my own long-term research.

Eighth, we should keep in mind that the Russia is very divers culturally and by the accustomed modes of living. It means that in some remote Northern parts of it the volunteers may encounter with traditionally-accepted modes of perception and actions against the CS.

Ninth, the state and civil volunteers have different understanding what the CS is and how to cope with them. In the former case, the state rescuers are taught and trained to cope with standard situations while in the latter one *the volunteers usually combine their past knowledge and the new experience gained immediately in the process of the CS development.*

The matter is: how this mode of gaining new knowledge + experience is accumulated in the regular processes of teaching in the secondary and higher schools? Now I’ve no answer to this question. The only one thing is clear: it’s much easier to practice this “double” mode of learning in the mega-cities and their suburbs than in the territorially dispersed numerous small settlements in the North-East Russia.

4. Some Theoretical Considerations

In general, the nature and tempo-rhythms of current CS are usually outstripped

the established rules and norms of current education process. In other words, this process lacks of reflection and reflexivity in time (Beck, 1999; Beck et al., 1994). But these two qualities pose a set of fundamental questions. It seems to me that it will be more correct to say that global society and as a whole and its media react to the emerging CSs much more quickly than the institute of education ranging from the kindergartens to the higher education institutions.

First, in what stage of our “transition” society development we are living now? The answer is not so easy, as it seems on the first glance. Russia is now in a transition period toward the Fourth industrial i.e. a scientific-technological revolution (hereafter the STR-4), and simultaneously has to renovate its industrial potential. The details of this transition have been analyzed in my recent book on this topic (Yanitsky, 2019).

Second, and the most important: an overall institutional structure of Russian society began to change. It’s indicative that these two transformations, of the macro and micro institutions should go hand in hand top-down and bottom-up.

Third, but in reality that institutional restructuring is going with different paces. While macro-institutions as economic and geopolitical relationships were changed permanently under the outer pressure (a creation of the transnationals, economic and political crises, sanctions, arms races, etc.), the micro-institutions like the municipalities and local communities especially in remote provinces remained practically the same.

Fourth, it doesn’t mean that the outer pressure always made the macro-institutions more mobile. On the contrary, this pressure often made these institutions more rigid to foreign suggestions and demands. At the same time, Russian scientists and engineers don’t bother about the negative consequences of the Soviet State decisions are taken more than 60 years ago. And any civil movements had been here powerless.

Fifth, in-between of urban and national institutions, on the one side, and municipalities, on the other, a layer of local bureaucracy continues to grow. Its members are the executors of endless number of rules and codes developed by national and regional institutions. But it’s clear that under the CS the quite another code will be needed.

Sixth, the state concentrates the institution of rescuers, its financing, education, equipment and many other necessary services in its hands. This institution is named as the Ministry of Civil Defense and Critical Situation of the Russia which collaborates with various military forces if necessary. But the function of the civil defense is gradually diminished in comparison with the state rescue forces.

Seventh, the above gap is often reproduced by the media which considers the civil defense as something secondary or minor. It signifies a growing gap between the state rescuers and civil volunteers with many organizational, financial and political consequences.

Eighth, it means that in the case of the CS emergence the state rescuers have

both legal rights and precise directions how to cope with a particular disaster, while the civil volunteers have not. But one has to keep in mind that it's impossible to have local rescue team in each small settlement in thousands of small settlements dispersed on a giant territory of Russia.

Ninthly, besides one has to take into account that local aborigines, especially in the Siberia and the Far East, are much more dependent on local natural conditions ranging from the relief till climatic fluctuations.

Tenthly, the researchers and teachers have to keep in mind that the biosphere is gradually but steady is transforming into the sociobiotechnosphere with its own risks and threats. The construction processes (planning, devising, programming and building) may generate new forms of the CS. In this case, the transnational project the "One Belt-One Road" represents a giant natural and social experiment.

Eleventh, the very mode of production and social reproduction of a particular social entity plays here a substantial role. In the Soviet Times, a spatial structure of these structural elements had been relatively stable while now, under conditions of the STR-4 it becomes permanently mobile (Urry, 2008).

Twelfth and the most difficult to detect, it is various metabolic processes. Every CS not only destroys natural, social and technical ecosystems but provokes numerous metabolic processes within them an affected environment outside it.

5. Specificity of Current Transformation of Russian Society

The transition of the Russian society to the STR-4 should be analyzed and interpreted in the context of many other processes and transformations of it and within global whole. The Russian society is simultaneously experienced many changes and the majority of them are interdependent.

Actually, our society is forced to implement simultaneously at least three transformations which all are needed time and various resources. Before the implementation of a transition to the digital age we should have a strategy of how to do it. There are a lot of the groups and organizations entitled themselves as "strategic" ones, but no one of them offered a complex i.e. all-embracing strategy of Russia's transition toward a new (informational) mode of production and way of life. It's incorrect to offer or consider a particular strategy of transition without, for example, paying attention to global climatic changes and their consequences.

Then, as Russian statistical bureau stated, more than 20 million Russians will become jobless in the near future. Such sharp economic changes may lead to strong social tensions. The reverse side of the same coin is who will replace them, because any industry based on the Internet is needed in the influx of new well-educated young specialists?

These young specialists should implement simultaneously two inter depended but very different kind of work: to create new i.e. the information industry and to adapt the old one to its requirements. I'd stress that in every particular type of

industry the relationships between these two processes will be different. This specific transition period is aggravated by the fact that the overwhelming majority of Russians are not well prepared to such transformations.

In any case, these youngsters have to know not only the ABC of informatics but to be sensitive to fundamental changes going in macro and micro worlds. As my about half-a-century experience in Russian grassroots and social movements studies and their close collaboration with the scientists showed, the students-volunteers are much more sensitive to ongoing transformations and therefore well-prepared to cope with many of them than the ordinary “lecture rooms students”. The latter usually prefer a routine of an “office work”, and some of them gradually becoming the young bureaucrats.

There are some impediments on this mode of living and action. I mean first of all a growing social and spatial mobility of the young. Second, under permanently rising the pace of transportation an individual loses a sense of living on the earth with its diverse and unique natural, social and cultural environments. The further the more the individual will be really living in a virtual environment. Paradoxically, but such “virtual individual” being well-oriented in the digital social space may lose the skills of living in a material world constructed by himself or his/her predecessors.

Dealing with a giant territory of Russia and its climatic, geographical, social and cultural differences one shouldn't forget that minor CSs are of no less importance than the massive disasters ones. I mean a very painful case of various kinds of natural reserves which usually represent a tasty morsel for various kinds of business or the rich.

Usually, it's very difficult to explain to the businessmen, developers or local residents that a particular territory is an inseparable part of a world natural or cultural heritage, especially if that territory had been used for the fishing or hunting for centuries. It's an actual sometimes dramatic conflict between local needs and a sustainability of the global whole. That is why a “small is not only beautiful” but very important principle for the nature and humanity survival.

In particular, the Russian Student's Environmental Movement had emerged and grown in the process of struggle for protection of these unique natural ecosystems protection. The creation of small reserve titled as the “Crane Motherland” or large biosphere reserves at the Caucasus are the results of a long-term struggle of aged professionals together with young students. The history of Russian environmental movement history keeps many other cases of the student's struggle for nature protection, for example, the “Cedar Descant” for the saving of the Siberian Pine is one of them (Chivilikhin, 1960).

One of new initiatives of Russian environmentalists has been the organization of the NGO titled the “Rivers without Boundaries”. The matter is the many Russian Siberian rivers began in China, Mongolia and in some other foreign countries. Russia has already built many hydropower stations on them while in the above countries these processes are in the very beginning. Such situation may be a fertile soil for the intergovernmental conflict (Simonov, 2018).

6. An Empirical Base: Already Existing and Needed

To begin with, we have to define which categories of people and territories are at risk. The rich and the richest, as well as the top administrators, have the most opportunities to escape any coming CS by the means of a resettlement abroad or by the use their private or collective bunkers. Besides, this category of people usually has their own services of a first aid, the hospital, technical assistance, etc. Finally, the rich are usually living in the large cities or abroad.

As concerned with the poorest, jobless and the aged, the situation is quite another for many reasons. First of all, their number is much more than the rich, and therefore the aid has to be massive but as it often happened, the aid services usually experience lack of personnel and means of transportation. In remote provinces, the roads in a bad condition or sometimes don't exist at all. Then, in these provinces, local population is usually living by subsistence farming or by hunting and fishing. Such population is often experiencing great difficulties for the reason of a tough competition with the fishing big business or with the poachers.

In sum, any CS exerts much more differentiated impact on a country population than under regular life conditions. This difference aggravates by the fact that the rich always have many other means of subsistence (deposits, business investments, etc.) while the poor are usually surviving either by additional earning or by their subsistence farming, fishing or hunting.

The above text is clearly showed that the empirical base for the study of the volunteer's participation is radically changed. It becomes much more diverse and mobile, and a speed of coming CSs and their transformations is permanently growing. Every step of the CS evolution may have other dynamics, for example, wave-like, and generate new, earlier unknown hazards.

A majority of the measures taken by the state rescuers and civil volunteers are usually implemented a posteriori just after the CS is already happened. It doesn't mean that these measures are not relevant but except for the tornados and extreme weather fluctuations these measures are taken with the aim of mitigation of negative effects of a particular CS.

On the other hand, the above rescue operations are restricted by numerous service instructions, on the one hand, and by a "bureaucratic milieu" on the other which usually slowed down necessary rescue measures, on the other hand. R. Murphy gives many convincing examples on how non-co-ordination of activity of municipal and regional administrations leads to a human and material losses (Murphy, 2009).

But in Russia, we have one more urgent problem. I mean the life of indigenious population in the Siberia and the Far East. Their issues deserve special attention, in particular because some of them are the nomadic people and practice a nomadic way of life.

What is more or less clear now? A mass public opinion surveys are not applicable in the studies of the CSs right now or just after their destructive activity.

Ordinary people were usually so shocked by the destructive activity of any CS, and the process of rehabilitation took so long time that such surveys may be conducted two-three months after or even longer.

But if within such small towns and settlements would be the insiders that would be capable to fix every moment of a particular CS and to transfer such information to a certain center of processing and aggregation of it will be very useful to modelling the CS-people-nature-environment relationships in time and space. And local volunteers may be such informants and even analytics. This principle seems strange at the first glance only; actually, it regularly used in many cases of the warships.

Any technological disaster is much more complicated, especially it's going on of a certain leakage from chemical or nuclear power plant. Nevertheless, the principle remains the same: the more points of diversified control, irrespectively human or technical, the better. A more generalized conclusion said that the degree of complexity of the CS and of the experienced peoples or of the instruments for the fixing and measurement of the hazards should fit the situation.

But it is not all. I think that in our hybrid and transformable world all people from their childhood should have some basic ideas about the metabolic character of our life and of principled metabolic transformations generated by the CS in particular. Of course, one should keep in mind that every CS may generate very specific metabolic processes.

7. A State of Russian Civil Society

Let's have a general look at the mechanisms and major trends of global whole development. Every moment this world is becoming more complicated, diversified and mobile. At the same time, the area of activity of Russian civil society volunteers restricted by more and more laws, codes and instructions. Instead of a development of efficient the state-civil society collaboration the state created many parallel public organizations like the All-Russian People's Front.

It may be reasonable to organize this Front as a partner of the governing political party United Russia and as its cadre reserve. But against whom this Front directed? It seems to me that this Front and numerous civic organizations and the grassroots may efficiently collaborate. As the disasters of the 2019 and previous ones showed, their negative after-effects have been mitigated only by the state rescue forces and by regular army sub-units under direct guidance of the Russian president Vladimir Putin. I never heard of participation of the Front's members in the mitigation of the above disasters.

8. On Volunteering of Science and Business Representatives

There is no volunteer's movement of a business as such. In the XIX century, the Russian businessmen considered rendering aid to the ill, disabled and poor men as their duty. It usually realized in the forms of donations for building hospitals, schools and poor-houses. Nowadays, the corporate volunteering is developing but it's not a true volunteering because it's restricted and governed by many

corporative codes and the time rhythms of a corporative work. Nevertheless, the charity activity of the business is gradually developed. In this case, such charity activity is rather structured and regulated by a corporate norms and rules than by true necessities of the people affected by a certain CS.

But even after so large-scale CS as the forest-fires and floods in Siberia in the 2019 the business leaders and business ombudsmen were concerned not with rendering help to thousands of affected people immediately but about how to revitalize a small business in affected regions. After the above CS, a so-called social business provoked intensive public discussion but without well-seen results. On the contrary, it again showed an artificial or conditional difference between the social business and business as such.

The cooperation between the scientists and true volunteers seems much more efficient. First, because the scientists were first who had been concerned with nature, destruction of its ecosystems, reducing diversity and so on. Second, the scientists, namely the biologists and climatologists began to establish civil organizations for nature protection. Third, it's the scientists who involved students into such voluntary work and later on they assisted in the establishment of the Students' Nature Protection Movement of the Soviet Union (nowadays, the Socio-Ecological Union International).

Fourth, this Movement had been organized as a network voluntary society but with its own aims, rules and norms of activity. Fifth, the cooperation of the scientists and students launched a new type of the investigations i.e. *a public-scientific research*. It's a principled point because it signifies a new stage of research and decision-making both top-down and bottom up. More than that, it's both very important and indicative that the theories and decisions take into account a permanent contact between these two and constantly changing social milieus. It's important because any environment is Janus like, it simultaneously plays the role of the absorber the CS and its after-effects and its active agent when its carrying capacity is surmounted. Besides, such exchange is very important when the CS exerts a point-like effect.

One more important note related to the methods of collecting information about CS. The majority of sociologists prefer a mass public opinion surveys. But under the rapidly developing and non-predictable dynamics of a particular CS such methods of collecting and processing information are inapplicable for various reasons. First, nobody knows the ways of a particular CS evolution. Second, a pace of public opinion surveys is incomparable with a rapid and nonlinear CS evolution. Third, the just affected people are not capable to gather relative information related to the state of matters, nor concerning of the future of affected people.

There are two ways out of this deadlock situation: to receive information related to the CS development from the insiders, and to organize an automatic network of monitoring of the CS development. It will be much more expensive but the observer could have more detailed and save information concerning that development. Both ways are valuable from the viewpoint of education of the in-

siders and observers.

9. The Volunteering Inside the CS

For the first glance, it seems unreal and dangerous. But we have to take into account the following circumstances. As my own and the other researcher's experience shows, a great part of residents didn't leave their habitat during the CS. Then, the further the more people, especially in Russian province, already have the Internet and personal devices. Of course, they may be out of work in the epicenter of the CS but nevertheless these people may get highly-valuable information concerning the character of coming to CS and its evolution. After then, as the researchers of stress showed, if the CS affects those people who are not passive victims but very active participants of a common struggle with a particular CS, they are usually much less stressed. Besides, local residents possess a unique knowledge about local processes and transformations which are usually unseen to outsider observer because such transformations are short-lived. Finally, such volunteers-insiders play the same role as military journalist did. These journalists may be better equipped and informed than local volunteers but the last has a unique quality: they know local conditions much better than any military journalist.

The residents of small settlements who are well-adapted to local conditions have the set of advantages over the residents of large cities. First, the former used to live in a relatively unchangeable environment while the latter used to live in a very diverse and permanently changing milieu. Second, the former are living in a more stable milieu free from massive pressure of man-made devices which periodically emanate electro-magnetic radiation. Third, in sum, the urban residents are permanently living under pressure of changing sounds, the street traffic noise as well as of the processes of renovation and repairing of buildings, etc. Urban life is a permanent interplay between changing rules of games within this milieu and human attempts to adapt to them.

Therefore, the residents of small settlements in remote provinces may be considered as a reserve of very important volunteers because they are actually significant for understanding of regularities of the CS and therefore are interesting to those who want to understand an inner dynamics of some types of the CS. I'd like to stress that more than 50 years ago the young people from the remote province had been very active participants of the Russian environmental movement. I convinced that current generation of such young people armed with modern technical devices will be the modern volunteers. When the whole world is densely covered by information network the difference between the mega-cities and towns gradually will be gradually effaced.

The problem of the migrant's adaptation to entirely new living conditions is still acute because they are competes with local residents for a shelter, work and other living resources. The migrants are not interested in a protection and maintenance of urban environment. Initially, the coming migrants are the

consumers only. And my long-term observations on their daily behavior clearly showed that they will never become the volunteers.

10. The Volunteers as the Experts

The further the more the experts who evaluate the coming CS and their possible consequences are becoming politically-engaged ones irrespectively of their origin. But we are urgently needed in true local experts in political, economic or human matters. That is we are recently needed in decisive turn in the recruiting of the experts from the lay people and local civic activists.

After perestroika (1989-1992) the civic activists have some public arenas for the discussions with a business and power structures, and the public hearings were one of them. The other channels of expressing civic activist's opinions were public gathering and meetings. But the further the more the public arenas for such discussions of civil organization with business and state institutions began gradually to diminish. Besides, some govern-supported public organizations as already mentioned the All-Russian People's Front had been established. These and many other measures had been taken in the context of overall trend of the power centralization. Nevertheless, there are two reasons that forced me to promote the idea of the volunteers as public experts further.

The concept of two contradictory paradigms, the Human Exemptionalism and New Environmental ones (Dunlap, 1980) has become outdated. This concept has contradiction in its very essence. These authors recognize the global environmental change phenomenon but didn't want to make the next step: to confirm that under myriad interactions of the substances of various origins within the global whole, an entirely new object-subject has been shaped which I've called an integrated sociobiotechnical system (hereafter, the SBT-system) (Yanitsky, 2016). As Wynne (1996: p. 45) rightly noted more than 25 years ago, the "nature knowledge versus "social" knowledge, nature versus society, experts' knowledge versus lay knowledge" are still deeply rooted in modern sciences and practices in all countries. I agree with Wynne and other authors of the above book that "social movements start out as lay actors... have clearly transformed themselves into professionalized counter-experts" (Szerszynsky, Lash, & Wynne, 1996: p. 22).

In accordance with some theoretical points laid down in Section 5, to calculate a trajectory of the particular CS and its immediate and long-term consequences is possible if a researcher or the volunteer is capable to combine top-down and bottom up approaches. And keeping in mind the principle named "the power of weakness". Besides, the volunteers are usually much more experienced people than regional and local bureaucracy migrated from one place to another in order to develop their carrier and wealth, and therefore don't bother about the state of matters in their town or municipal region.

My long-term studies of the Russian environmental movement clearly showed that its members are well-experienced and multidisciplinary professionals capable to be the experts in environmental and other acute matters. The including

observations of my colleagues showed that the Russian youth is strongly concerned with its future. The same intentions we see in the Sweden and other Scandinavian countries, in Germany and so on. Of course, it's not all-embracing trend: a consumerism is not only spread by the media but propagated by well-known economists who stated that a permanently growing consumption is the only way for humanity survival. About 30 years before I already showed the contrary trend (Yanitsky, 1993).

11. Conclusion

A transition period to the STR-4 cannot embrace a whole country at once. Every innovation is initially emerged in some points of a global space (like the Silicon Valley in the US or the Skolkovo reserve in Russia) and then gradually spread all over the world. It means that the residents of vast territories like the Siberia have time to be well-prepared for any CSs.

The researchers together with the ordinary residents have to distinguish the climatic fluctuations, global warming and its consequences, and the disasters produced by high technologies. Besides, they should take into account a permanently changing geopolitical situation, global and regional, say in the Arctic. A long-term global warming may produce many unexpected transformations both in the mode of production and everyday living simultaneously.

In sum, it means that the creativity of inventors has to develop hand in hand with the creativity of the residents aimed at the prevention of any CS or at the mitigation of their natural, technological and human consequences. In other words, these residents especially the young ones have to be the volunteers as well. To love the nature only is now already insufficient because all people should learn how to protect and regenerate it.

The world as a whole is entering in the epoch of hybrid phenomena in which "normal" and the "critical" situations are merging. It means that recently humanity existence is at stake. And we, the elderly, have to bother about the future of the youth both listen to them and to teach them how to protect their living environment locally and globally under such hybrid conditions. In turn, it signifies that the degree of complexity of the CS and of the experienced peoples or of the instruments for the fixing and measurement of the hazards should fit to the complexity and diversity of the situation.

From the early childhood and throughout full life including a secondary and higher school, the learning of protection nature and keeping technical milieu safe should be a permanent duty for all people. Therefore, the creative education is much wider and more diversified than the "classical" one. *The creative education is a permanent process of adapting human activity and its institutions to a multisided development of their living environment*, be it natural, social or technologically constructed. The time of transformations and their metabolic outcomes are becoming the key factors of the CS mitigation and of teaching under conditions of permanent transformations of living and wasted environment.

As to education in all its steps, it has to outstrip the current local-global processes and structural forms of development, deconstruction and reconstruction. That is the process of education should be based on complex, i.e. socio-bio-technical prognostics. A child, teenager and student have to be involved in these races with a reality. In turn, it means that the teachers and tutors have to be trained in the same way.

In our mobile and transformable times, it's impossible to concentrate any rescue operation in the hands of the state rescuers only. The further the more the scientists, other professionals, the volunteers and ordinary people will fulfill these operations, especially in a post-catastrophe period.

Funding

This article is funded by the Russian Scientific Fund, grant No 19-78-10052, the project "Emergency volunteering as a reply to the natural and technological challenges in Russia".

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

- Szerszynski, B., Lash, S., & Wynne, B. (1996). Introduction: Ecology, Realism and the Social Sciences, In: *Risk, Environment & Modernity* (pp. 1-26).
- Beck, U. (1999). *World Risk Society*. Malden, MA: Polity Press.
- Beck, U., Giddens, A., & Lash, S. (1994). *Reflexive Modernization. Politics, Tradition and Aesthetics in the Modern Social Order*. Stanford, CA: Stanford University Press.
- Brush, S., & Stabinsky, D. (1996). *Valuing Local Knowledge*. Washington DC: Island Press.
- Chivilikhin, V. L. (1960). *Murmur, Taiga, Murmur!* Moscow: Pravda Publishing House. (In Russian)
- Dunlap, R. (1980). Paradigmatic Change in Social Science: From Human Exemption to an Ecological Paradigm. *American Behavioral Scientist*, 24, 5-14.
<https://doi.org/10.1177/000276428002400102>
- Forrester, J. W. (1971). *World Dynamics*. Cambridge, MA: Wright-Allen Press.
- Indigenous World Yearbook 2019*.
- Keen, D. (2008). *Complex Emergences*. Cambridge: Polity Press.
- Latour, B. (1987). *Science in Action*. Milton Keynes: Open University Press.
- Murphy, R. (2009). *Leadership in Disaster. Learning for a Future with Global Climate Change*. Montreal: McGill-Queen's University Press.
- Naumova, N. F. (2006). *A Man and the Modernization in Russia*. Moscow: Kanon+, ROOI "Rehabilitation". (In Russian)
- Simonov, E. (2018). *Hydropower Projects and China Investment in Eurasia. The Rivers without Boundaries Coalition Works on Protection on Eurasian Transboundary Rivers* (the Conference Report).

- Urry, J. (2008). *Mobilities*. Cambridge: Polity Press.
- Wynne, B. (1996). May the Sheep Safely Graze? In S. Lash, B. Szerszinski, & B. Wynne (Eds.), *Risk, Environment and Modernity* (pp. 44-83). London: Sage.
- Yanitsky, O. (1993). *Russian Environmentalism: Leading Figures, Facts, Opinions* (226 p.). Moscow: Mezhdunarodnye Otnosheniya Publishing House.
- Yanitsky, O. (2016). Sotsiobiotechnichnical System: A New View on Man-Nature Relationships. *Sociological Science and Social Practice*, 4, 5-22. (In Russian)
- Yanitsky, O. (2019). *A Transition Period: Aims of the Study, Theory and Practice*. Moscow: Russian Political Encyclopedia. (In Russian)