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**EDUCATION OF THE FUTURE IN THE CONTEXT OF
TRANSHUMANISM**

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Abstract

The article discusses the basic principles and methods of "exponential learning" in the sense of the apologists of transhumanism. In the transhumanistic movement, represented at various levels, including research, educational and entrepreneurial, an integral model of development, or rather "improvement", the ecosystem as a whole and human potential in particular is being actively implemented. Man is thought of as one of the stages of evolution, which through intelligent control with the help of technology will adapt to the new world, but perhaps man himself will be overthrown by a more perfect adapted "species", according to N. Bostrom, Artificial Intelligence can become such a new creation - Superintelligence. "Exponential thinking" should be used as a universal cognitive method or type of thinking, which should be learned and applied in all areas together with NBIC technologies to achieve the main goal - "Human enhancement technologies". However, the question arises, if "exponential thinking" is used in its true meaning it is a kind of brand adapted for the clip thinking of a modern person, combining flexible skills with digital ones (soft skills + digital skills) in the context of digitalization? Exponential training is, in fact, a set of psychological technologies (realized primarily at the psycho-emotional level), which through educational programs and seminars make students convinced supporters of the transhumanistic movement.

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Keywords: Transhumanism, exponential learning, exponential thinking, enhancement.



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1. Introduction

To deeper understand educational technologies, it is necessary to briefly highlight the basic principles of transhumanism as a modern Western paradigm:

1.1. Basic principles of transhumanism

1. Evolutionism. Transhumanism adheres to the understanding and interpretation of the planet and man development in the format of the transition from random blind evolution to technologically controlled evolution, at the last stage, most likely with the help of AI; 2. Neophilism is novelty as an axiomatic priority adequate to the growing pace of change, instability, chaos, exponential progress (traditions, conservatism, linearity are declared obsolete, irrelevant); 3. The use of oriental meditative and yogic practices, elements of Gnosticism, occultism for the development of the psyche, alternative states of consciousness, creative thinking in the format of developing flexible and digital transhuman skills; 4. Exponential technologies, digitalization, “Big Data”, the convergence of NBIC technologies, AI, as adequate methods of approximation and adaptation to the era of Singularity. Competition "... between representatives of Big Data (D. Trump's team relied mainly on them) and empirical sociologists for their valid knowledge of people's thoughts, aspirations and feelings, representing specific fragments of society and even individual individuals Winners in this confrontation get new jobs, losers - unemployment risks” (Kravchenko, 2019, p. 52) is already growing in the globalization world, including in the field of social sciences.

1.2. Basic principles in education

Ideologists, supporters, and students are united on transhumanistic sites by several attitudes that are clearly fixed at the educational level. This is, first, the common worldview format of “Exponential Thinking / mindset”, which forms the optimal set of flexible and digital skills (soft skills + digital skills). In the educational model itself, transhumanists actively support advanced methods of digitalization of the educational process, developing for example synchronized on-line training with elements of augmented and virtual reality. All the above is advertised and argued in the context of the concept of "Human Enhancement Technologies", implemented by using NBIC technologies - a comprehensive technologization of human life, a way of thinking, organizing social space and communications. So, in view of the accelerating pace of digitalization towards specific global economic and political programs for convergence of NBIC technologies, the symbiosis of “man-machine-network” and the changing format of educational activity, it seems extremely important to understand what education can become, what it wants to be, and by what will the classical academic education be replaced, according to the influential Western movement of transhumanism.

2. Problem Statement

The analysis of various research papers on transhumanism captures a slight interest in the educational paradigm of transhumanism itself. The latter, in our opinion, appears not only as a typical technological advanced education system that implements digitalization of all spheres of life, but also as a kind of platform for popularizing the ideas of transhumanism in the world community, especially among the authoritative political and economic elite and the scientific world. Following the example of high-

ranking universities, where elite educational programs began to be implemented (Chubik et al., 2013), ideologists of transhumanism actively position themselves as representatives of leading Silicon Valley companies, thus, R. Kurzweil is one of the technical directors at Google, V Bainbridge is lobbying US government NBIC convergence programs. On the basis of a private university (Singularity University), R. Kurzweil and P. Diamandis invite leading experts from high-tech companies to conduct webinars, summits, and evaluate start-ups of students who are studying.

2.1. Advanced educational programs in transhumanism, as exemplified by the Singularity University (SU) include:

Exponential technologies, on-line training, micro-training (short distance learning sessions), a new student assessment system, a mobile training format (not limited by the place and time of training) - all this "works" only at the elite level, since it requires significant financial and technical costs, and is also effectively implemented only in small groups or at the individual level. However, such an educational model is presented as the only and best alternative, a panacea for the entire education system. Exponential technologies, according to trans-humanists, should completely supplant classical academic studies, but today's digital educational technologies and their existential risks have not yet been adequately assessed.

3. Research Questions

What should education become in the future, what elements should it consist of? It is necessary to critically approach the educational model of transhumanism and assess the possible risks. First of all, this is education that is adjusted for a specific ideology and goals, understood as adequate measures of adaptation to the coming era of the Singularity, to the post-human's world. Regarding the education of the near future itself, a teleological question arises of the primary or authenticity of the goal: 1. Education for profit in the context of the market economy survival (hence the merging of the university with a business incubator and business projects); 2. Education as a way of retraining and for this a variety of courses, retraining centres set up; 3. The educational process for knowledge, obtaining and mastering flexible and digital communication skills, research work purposes, but this task is performed by a classical university with live communication, lectures, seminars, discussions, teams, and digitalization as a panacea, expressed in simplifying the whole process education to the level of advanced computer courses "click person" is a degradation model. Is the transhumanistic model of learning with the dominance of exponential thinking in it a utopia? And even in the case of a positive implementation, does it contain side effects?

4. Purpose of the Study

It is necessary to analyse the essence of the transhumanistic educational methodology aimed at the future domination of the so-called "Exponential Thinking / mindset" among trans-humans for further transition into the post-humans and the era of the Singularity. Such a model is being actively implemented at the Singularity University - it is simultaneously an educational institution, a business incubator, and a venture fund.

To consider the meaning of the concept “improvement” in the educational methods context, “exponential training” in the «Human enhancement technologies» paradigm (improving human potential by overcoming human nature: natural birth, aging, pain, diseases, death through fusion with technology).

5. Research Methods

The following research works were studied: Kurzweil (2020, 2010), Bostrom (2003, 2016), Bainbridge (2005), Pierce (2018), Vinge (1993), Bostrom and Sandberg (2009), etc. Educational programs, particularly, the experience of Singularity University, were considered. A critical analysis of transhumanism is presented in the research works of Fukuyama (2003), Habermas (2005), Kutyrev (2015), Tischenko (2014) and others.

Transhumanism is at all levels actively lobbying the Big Data methodology (R. Kurzweil uses big data as an important argument of the author’s vision of the future), NBIC technology for the transition of a person into a trans-human, and then into a post-human. At the present stage, key leaders and representatives of the elite are actively involved in promoting the ideology of transhumanism around the world, including through educational programs.

The main methodological principle (the author’s development of the “guru” of the R. Kurzweil’s transhumanism movement) actively implemented through educational programs is “Exponential Thinking” (Kurzweil, 2020). It is conducted at the level of informal communication, among those who have completed training, and is often called the “exponential mindset”. This is a kind of conceptual integral worldview for all supporters of transhumanism. “Exponential Thinking” is the thinking of the future that needs to be learned now, since it complies with the laws of accelerating evolution (development occurs as if by leaps, exponentially). If earlier, according to Kurzweil (2020), at the initial stage it was recorded as linear progress, then after a series of five scientific and technical revolutions (the invention of electromechanical devices, relays, vacuum tubes, discrete transistors and integrated circuits) it passed into exponential acceleration. After exhausting the potential of one scientific revolution, the next one was immediately turned on and progressively launched. However, the question of the inevitable next spurt is still open. Regarding the way of thinking, according to R. Kurzweil in the era of computerization, linear thinking works like a brake and does not contribute to the approach of the era of Singularity. Such an argument is an example of simplification because it is not linear thinking that makes you resist digital change, although, of course, the worldview affects this. People do resist change not because of their traditionality, or stereotyped thinking, but because of common sense, self-preservation, a certain instinct that is in us and allows us to clearly understand and distinguish the righteous, vital, and moral attitudes from others. Transhumanists believe that the individual in his mental activity is able to move from a linear to an exponential. Linear archaic thinking or, in other words, slow intuitive that is based on past experience is completely unsuitable in the digital era and must be replaced by exponential thinking. However, R. Kurzweil himself notes that exponential growth is not infinite. The question arises - how reasonable it is to trust and adopt such a belief and style of thinking, not to mention the fact that here we are dealing more with metaphor than with specifically progressive diverse thinking.

Transhumanists insist on a symbiosis of soft skills with digital ones (soft skills + digital skills), the former provide ease of assimilation of the latter. And digital skills are essential in a changing digital world.

An analysis of educational programs shows that even professional high-tech knowledge sounds paradoxical here, but it turns out to be not the main one, as mastering “exponential thinking” is more important. The set of soft skills includes the ability to communicate with different communities, the development of emotional intelligence (EQ), as well as thinking, which is practically and project oriented for the implementation of the author’s messages with the necessary growth of income of a one start-up or another. Digital skills are, for example, the application of all the same exponential technologies involving computer games, augmented and virtual reality, understanding and mastering the Internet of things (IoT), etc. They need to be developed “full-time”.

5.1. Future of Learning - exponential learning

Many adherents of transhumanism are engaged in the improvement of education. They critically evaluate classical education, emphasizing that in a traditional or industrial education system, there are serious regressive restrictions: certification, subject matter, limitations of cognitive ability and development, boring and routine presentation of information, irrelevant knowledge. In general, exponential training or Future of Learning, which is ideally planned at all levels from developing a certification program for faculty members at a particular training centre, to the subject of courses and forms of their implementation in online education (via computers, tablets, phones and other intellectual devices with a predominance of video training, for example, in the format of an on-line seminar) includes the following components:

1. Rejection of the traditional demotivating grading system in favour of grading through the accrual of points based on a computer game (score for each successful decision) principle.

2. The course subject matter includes knowledge and information that is only relevant in the digital society (Singularity University website).

3. Micro-training is short distance interactive sessions throughout the day. In SU, a “bite” metaphor is used. Pro argument is that such short classes help keep one's attention (Singularity University website). However, practice shows that the shorter the classes, the more relaxations, the faster the attention is scattered and vice versa; attention training allows the person to focus on large and complex topics. This is again a property of adaptation and simplification in the mind - if the lesson is shorter, then it means you can relax even earlier.

4. A great component of entertaining technological content in learning includes learning through computer simulation, a game, a lecture in the form of a graphic novel or comic book (see Science Fiction Intelligence Design Seminars, and an exponential guide to the future of learning - Science Fiction Design Intelligence workshop and an exponential guide to the future of learning). Interactive Digital Test Kitchen (DTK) for studying synchronous online learning as one of the mechanisms to expand the reach of teachers, experts, and innovators (Singularity University website).

5. The rejection of traditional group classroom instruction towards individualized instruction, as the individual becomes more mobile and must constantly move, travel long distances, be in different places and learn more at an independent practice-oriented pace (not the student attends the “temple of knowledge”, but the school accompanies / comes to the student) (Singularity University website).

For example, in SU, the above elements are built into several educational programs: the GSP - Global Solutions Program and Executive Program. Summits, webinars, projects, team building are also held. Family education (Singularity University website) is welcome.

However, such exponential training has many side effects at the present stage and is generally assessed as “unstable”, but this problem, according to transhumanists, will be solved by the convergence of NBIC technologies. Future training will overcome all limitations in parallel with the cyberization of the person, when competencies will be realized immediately at the genetic level (gene editing), physiological (neuro prosthetics, embedding chips in the cerebral cortex), behavioural (designer drugs, pharmacy coding) and subject to the appearance of AI, which itself will improve the system of control over the entire ecosystem.

5.2. Human enhancement

The before-mentioned exponential learning is subordinated to a single goal – to improve the human to the posthuman. Transhumanists often use the term "human enhancement", for example, the book title written by a bioethics Julian Savulescu and philosopher Nick Bostrom "Human Enhancement", 2009. Their colleague W. Bainbridge applies the term "Improving" – the program of NBIC-technologies development "Converging Technologies for Improving Human Performances", 2002. The Concept of "improvement" means artificial or technological change of the human body, and through it of human consciousness. The majority of transhumanists appreciate the experiments on the artificial transformation of a man, arguing that the inevitable exponential scientific and technological progress and transition in the era of Singularity, where only human hybrids will survive or minds in the state of the digital download if the main controller namely AI (artificial intelligence or superintelligence) want it to be. Bostrom (2016) writes, "...the concept of the over mind. It is any intellect, far surpassing the cognitive capabilities of the person actually in any fields.... More potential path leading to the super mind, – the gradual improvement of the networks and organizations that connect people's minds with each other and with various artificial objects and bots, i.e., programs that automatically perform actions instead of the person. The point is not to improve cognitive abilities of individuals and ultimately bring the population of super intelligent thinkers. The idea is to create a kind of a Union of individuals, organized in such a way that this emerging network could achieve swarm intelligence in its development – level of a network, which we'll call "collective over mind" in the next Chapter. Unlike human beings, artificial intelligence agents have completely different abilities and internal state; besides, they clearly have greater potential and are much more successful in establishing links with the environment". However, by now partially social networks, search engines and other programs are actively performing this task. The more information is downloaded, digitized, the more people get a digital identifier, the faster the network, the machine will evolve to AI. But as N. Bostrom rightly notes, this will not at all mean an improvement in education as a social institution, or an increase in the educational level of a specific person (the individual here more likely acts as a donor for the machine). According to N. Bostrom, “improvement” is best implemented through technologies: genetic modification (genetic engineering), genetic therapy (this is partially realized at the level of so-called cognitive improvement with the help of Ritalin and Adderall drugs, which are prescribed for people with attention deficit disorder). The future belongs to designer drugs, neuro prosthetics (electronic devices implanted directly into the brain or nervous system) and cyberization in the broad sense of the word.

We agree with Buynyakova (2019) who writes, referring to B. G. Yudin, that ... biotechnologies are justified in attempts to return people to their normal state - treatment of wounds, healing from diseases that affect the human body. But improving a person's capabilities to a level higher than that which a person has ever possessed or did not possess at all is fraught with danger, risk, and ethical problems. It is obvious, that such technologies already have and will have an impact on a person, the person's ideas about himself, his place in the world of new opportunities ... from the point of view of transhumanistic discourse, the goal of medicine should be a radical expansion of the adaptive capabilities of a person, that is modification of the norm itself. Bostrom (2003) believes that the basis for this should be "genetic improvement of the human germ line" (pp. 493–506). Of course, such a radical modification of human genetics will be associated with serious problems of bioethics" (Buynyakova, 2019, p. 296–297).

In the framework of the global project "Human enhancement technologies", a number of transhumanists, in particular Nick Bostrom and David Pearce, created the World Transhumanist Association (now called the NGO "Humanity +"), 1998. To develop "new ethics", Nick Bostrom, together with James Hughes, established the "New Ethics" Institute of Ethics and New Technologies, 2004, and for the implementation of serious scientific projects with an assessment of the possible risks of introducing high technologies and approaching the era of the Singularity, Nick Bostrom, together with James Martin, created the Future of Humanity Institute (FHI) on the basis of Oxford University in 2005.

Transhumanists often forget that they are dealing with a metaphor (the costs of the postmodernism influence). So, it is a person, as a creature with an incredible ability to adapt and imitate, (including empathy even for non-living objects, artificial own creations) that is able to simplify himself to the level of an object, in our case, to the level of digital reality, a machine format, and not vice versa. A man does what he always does, "humanizes", spiritualizes (transfer of the properties of consciousness) nature, things, and now virtual reality, environment, "digit". R. Kurzweil called one of his books "Spiritual Machines" i.e., spiritual, intelligent thinking machines", a typical example of the transfer of metaphor (which was previously characteristic of literary texts). A machine, by definition, cannot be spiritual, thinking in the human sense, rather, a person thinks for it. Another argument is that, if such an imitation, adaptation of a person to a machine is carried out (technically - with the help of implants, and at the level of consciousness - a person first agrees to cyberization), then a person can really become a machine, but the price will be high. However, he (the man) is more than a machine! Another psychological argument is that, if the digitalization of the person himself is correct and useful, then he should come closer to harmony, happiness, satisfaction, a feeling of fullness, however, more and more people with "bowed heads" because of gadgets (Mironov & Sokuler, 2018, p. 21) feel depressed, choose suicide, they are alone and unhappy. You can't decide for all people and impose only one path, you need to consider different options, because a person is a smart, creative and, most importantly, free creature, he can always offer an alternative to such a gloomy digital future of the era of the Singularity.

6. Findings

Let us consider the above principles, foundations, and methods critically.

6.1. Is "exponential thinking" an over-accelerated thinking?

What kind of thinking is this? To what extent is it adequate and necessary for the society? Exponential thinking is a kind of a postmodern metaphor, since the mental activity itself takes place in the students who study this thinking in the usual mode (the same departments (sections) of the brain are involved, the logic is included in the work, and the construction of mental operations takes place in the same sequence as the thinking process of others. If we talk about the thinking process or way of thinking as a way of reflecting reality, as a result of which an idea, a concept is born, something takes on meaning. If exponential thinking is understood literally, then it should produce an enormous amount of new ideas with impressive depth and potential, and if that were so, then we would now have a huge number of not only discoveries, but alternating scientific and technological developments in each current quarter. If one tries to evaluate intelligence in general, then, as you know, it has several types of thinking: logical and conceptual thinking, which requires careful, detailed, thoughtful, deep and holistic coverage of the subject and visual-figurative thinking. The latter, due to constant stimulation in the modern information society, as well as due to the crisis of conceptual thinking, began to transform into the so-called "clip thinking", which captures images and impressions without deep analysis at the level of quick primary reaction, but without further elaboration and deepening. In the world of modern information technology, in the world of numbers there is no sense, a person just turns into a database (Girenok, 2018, p. 137). The accelerating pace of information flow, brightness, emotionality, brevity, novelty, fragmentation, and associativity - all these components are well studied and "captured" in training programs for exponential thinking. These attributes are included in flexible skills, and digital technologies implemented in a set of digital skills serve as a profitable bait. Modern young people are "clip players" whose consciousness has such properties as: fast fatigue, distraction or randomness of attention (memory is developed poorly due to the constant change of information slicing and easy access to various data), the race for vivid impressions, dependence and desire are all large emotional injections and increased, due to the above features, suggestibility. These aspects of the modern youth consciousness are highlighted and included in the training of "exponential thinking". Exponential learning stimulates and uses different aspects of clip thinking as proof of the human development correctness and the need to further apply "Human enhancement technologies" in an accelerating chaotic world. So, exponentiality implies that each jerk is twice as large as the previous one (technologies grow exponentially, and thinking should also be improved according to a mathematical law). For example, such ability as computational skills and here, as you know, machines were able to overtake a person, but again, the principle of operation of algorithms is somewhat different than that of consciousness. It is assumed that a person must have the same skills as a calculator. What about other abilities? The ability to abstract or analyse, or to see an object in the integrity of all connections, here a person surpasses everyone, including the machine. How do different abilities with the help of exponential technologies develop among trained trans humanists?

As a result of "exponential thinking", a man, undergoing the influence of exponential technologies (primarily on the psycho-emotional level) is getting through retraining staunch supporter of the transhumanist movement. As a result of intensive training programs (e.g., Executive Program) world outlook is changing i.e. this is not a gentle approach when people most carefully relate to the beliefs of the individual, respect his way of thinking – the purpose of this training is to change thinking, to displace

existing beliefs, reformat, filling the consciousness with new contents. A person who has realized an interesting scientific project (such students are invited to a program at SU) is in some ways a different person, a staunch transhumanist. Besides, rigger exponential technology work through the suggestion of fear from uncertainty that if you stay on the principles of linear thinking, it will lead to a dead end, to terrible consequences, since it is not able to see the exponential growth of technology and the future. And exponential thinking stabilizes the mind, because inner harmony and a willingness to see such jumps as the norm reduces stress (appeal to the psychological argument). However, almost all transhumanists describe the era of the Singularity as something exceptional, not computed and not completely controlled, but still hope that it can be "negotiated», or it is possible to create some fuses. For example, to adjust the development of AI, but still, according to N. Bosrom it will be developed itself and the individual in comparison with AI (like an ant compared to a human), will not be able to foresee actions and consequences.

6.2. Differences of the transhumanist interpretation of "Human enhancement" from other definitions of the concept of "improvement"

The main difference between the concept of "Human Enhancement" from the classic understanding of "improvement" is that: 1) in transhumanism, improvements overcome / eliminate the boundary of human uniqueness, identity, and therefore ignore the concept of "human dignity", 2) technological improvements are specially introduced into a healthy organism, and not in a patient in order to support his functionality (although in the beginning, just such experiments get public permission), 3) the method of Human Enhancement Technologies involves the application / implementation of everything with different varieties of NBIC-technologies from genetic modification, therapy to implants, and the like designer drugs. It is necessary to call a spade a spade - the launch of the NBIC-technologies convergence is a slow or fast elimination, the death of a "natural" person as an initial prototype. Instead of a person, there will appear a certain "copy" with other characteristics, a kind of simulacrum, a fake only vaguely reminiscent of the original prototype.

6.3. Utopianism of the transhumanistic vision of the future formation

Utopia and "fantasy", as well as excessive ideologization of the vision of the future and, accordingly, the formation of the future in the works of R. Kurzweil and others, when the technological digital scenario seems to be winning and almost the only one for the mankind survival is a "salvation bay". So, for example, in the case of a negative scenario of ecosystem death, the virtual environment seems to be the only place where consciousness exists (digital immortality, omniscience, mobility, etc. in the network), as well as the colonization of other planets. However, it is now obvious that the computer world is prone to "diseases" and even a pandemic is no less, if not more, than the real world. The network gets infected with viruses faster, slows down from various failures, depends on external agents and various economic and political factors, suffers from hackers, etc. Its diseases have no end, and they progress faster than biological diseases. Hence, it is extremely unreasonable to place all human knowledge, methods, and forms of training in digital format and to hope for the reliability of storage facilities (servers, supercomputers). Simplification makes you see and concentrate on dominance and sometimes in a single copy of all the achievements and experience in the network. So now the paper version of books and articles is often not sold, many educational organizations almost never buy books and magazines, but only pay for virtual content. In the

event of termination of funding, they immediately remain without a source of information but this does not happen with books or if inside a virtual library, many interesting resources are closed or transferred to paid content, and in non-virtual libraries, there was always the opportunity to take and read a book. Now, however, the authors themselves often cannot provide articles, because the resource is charged, or they do not have the right to constantly post their works there.

7. Conclusion

Democratical phrase “education for every person” shows that a specific selectivity is manifested: the selection of students of educational programs according to specific elite criteria; behind the freedom of views and estimates, a clearly defended format of thinking that is “exponential thinking”; for openness – authors’ paid closed educational services that require both financial investments and serious technical costs. The presentation of education of the future model itself is too “utopian”, which differs from real interests (non-transparency of projects and principles of selection of participants) of both transhumanists themselves and their educational centres, for example, Singularity University. Thus, “exponential thinking” is a kind of a brand adapted for the clip thinking of a modern person, combining flexible and digital skills in the context of digitalization. Exponential training, through a set of psychological technologies, is implemented, first of all, at the psycho-emotional level: 1- the conviction of the need to properly prepare for the era of Singularity; 2- to cope with stress; 3- to join the world elite; 4 - to survive in the technological world that is under AI control, 5- to obtain the privileges and properties of the transhuman and the posthuman: longevity, exceptional abilities, immortality, blocking pain and suffering. All the above makes listeners a strong supporter of the transhumanist movement through educational programs and seminars.

In a world with a stable trend of constant economic crises of the market economy education becomes almost exclusively a business project (education in a classical academic sense, becomes inadmissible luxury). But all the "pros" of convergence education with business, we cannot ignore certain blocking factors of such an alliance: 1-scientists choose only the sphere that will bring a profit as soon as possible, and "non-profit" projects are on the shelf and therefore we ourselves are postponing a possible breakthrough in other areas, about which we can yet only guess; 2- Interesting and less costly technology are intentionally frozen or bought by the monopolistic companies in order to receive a stable profit, which also often plays a negative role for the progress; 3- the market paradigm itself doesn't help to stimulate young people to go into science, if you have the opportunity to do a profitable business; 4- Depending on the status of the country, the opportunity to be engaged in basic science varies dramatically. In developing countries only those research projects are stimulated, which give the result in the near future and thus the country loses in the long run. Developed countries can afford to develop a fundamental theoretical science. So, in Silicon Valley, creatively oriented engineers are not required "to take turnkey" your project (from the idea to its full realization in a start-up). They can be engaged in laboratory works, and then the managers and designers realize or slow down the launch of one or another technology product.

And finally, one cannot fail to include in the article critical comments related to fears about digitalization and its implementation in real society. Speaking of progress, we forget that progress does not apply to all areas, but only to some, or even one - digital. Speaking of science, we do not see that this is not all science, but, first of all, technoscience. And when we talk about the integration of various branches of

science, we forget that this is not integration on an equal footing or with different options, but rather convergence, in particular the convergence of NBIC technologies, since they are the panacea for all the ills of mankind. "B.M. Velichkovsky notes that cognitive technologies (NBIC-technologies) are, first of all, the technologies which are considered as the basis of social progress However, NBIC-technologies ... "blow up" the human world's life up to the transformation of human nature itself, its identity" (as cited in Chernikova & Chernikova, 2013, pp. 86–87).

The fragility, vulnerability of the network, and digital technologies cannot be ignored, for example, "loading consciousness" into such an infected diseased network means automatic infection of the "human" and possibly digital death or painful existence with virus inserts. In such a network, education also becomes poor in many respects or distorted and difficult to correct.

The pandemic that occurred and the unplanned sharp jump in the transition to distance learning gave a spontaneous opportunity to assess the full range of possibilities, since a global experiment was launched. We can already clearly fix the technical shortcomings of the real possibilities of distance learning, the growth of depressions and stresses, the cognitive learning problems of all participants of the educational process. Even famous people, politicians, scientists began to complain about the lack of live communication. A person in a state of "isolation" (this has always been considered a punishment) cannot develop normally and be happy.

We still do not know exactly why in the event of catastrophes and pandemics, some people (organisms) die and others survive. Living organisms are unique and diverse: at the genetic, physiological, and mental levels. They are much more complicated at a qualitative level, i.e. they are in large excess over the level of complexity of digital devices, hence it is extremely unreasonable to assume that only machines and cyborgs will survive in the event of a disaster.

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